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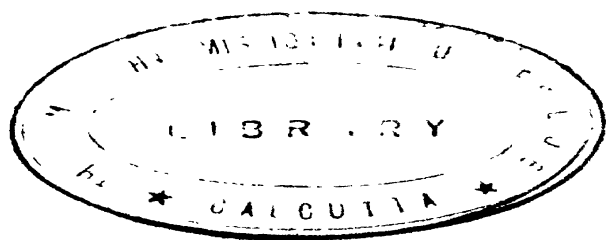
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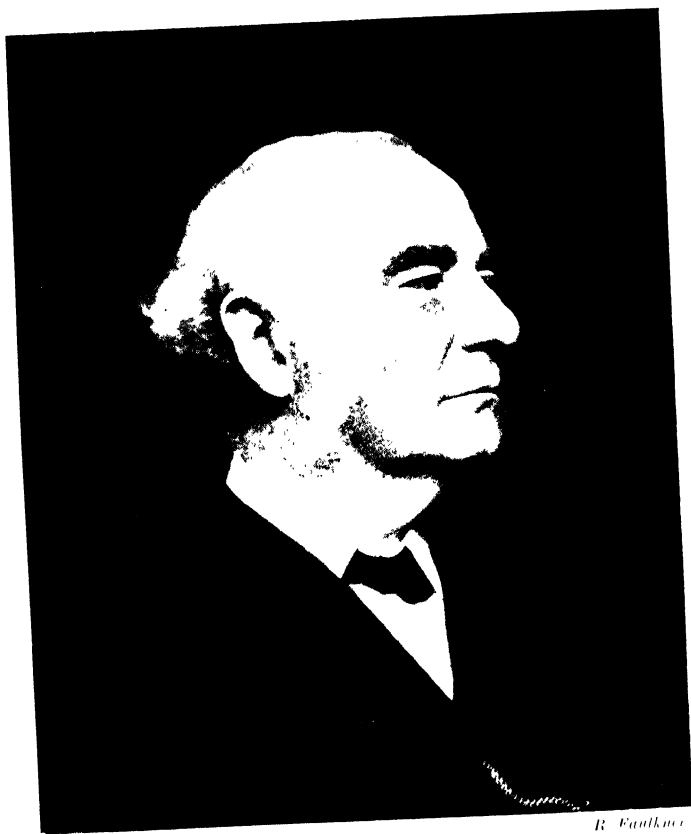
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LIFE OF ALFRED NEWTON, M.A., F.R.S.

PROFESSOR OF ZOOLOGY AND COMPARATIVE ANATOMY

IN THE UNIVERSITY OF CAMBRIDGE, 1866-1907



Frontispiece

R. Faulkner

ALFRED NEWTON, M.A., F.R.S.

LIFE OF ALFRED NEWTON

PROFESSOR OF COMPARATIVE ANATOMY
CAMBRIDGE UNIVERSITY 56-1907

BY A. F. R. WOLLASTON

WITH A PREFACE BY SIR ARCHIBALD GEIKIE, F.R.S.

WITH ILLUSTRATIONS

LONDON
JOHN MURRAY, ALBEMARLE STREET, W.

1921

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NOTE

WHEN in the spring of 1909 his literary executors paid me the compliment of asking me to write a "Life" of Professor Newton, I accepted the invitation with enthusiasm tempered by diffidence, little guessing the delays to which it would be subjected, and little knowing the difficulties of the task. It became very soon apparent that the interests of so sedentary a life as that of Newton must be looked for principally in his letters. This led to the startling discovery that he had kept almost every letter he received during a period of more than fifty years, and to the further fact that a great many of his correspondents had preserved almost every letter that he had written to them. Searching through these thousands of letters was a work of several months; and after that I was unavoidably occupied in New Guinea for a term of years. During these absences from England—and later during the war—I made attempts to induce others to complete the "Life," but without success.

So it was not until 1920 that I was able to return to it. In the meantime the business of producing books, like all other things, has suffered a change, and the ample biographies of the spacious days before 1914 are no longer possible. Thus it happens that this volume has been reduced by nearly a half of its bulk, greatly to the advantage of the casual reader, if such

there be, but, I fear, at the cost of some disappointment to others who had hoped to see their interesting correspondence with Newton included in the book. In cutting down I have tried to act on the principle of preserving his best and most characteristic letters on whatever subject, rather than of including technically important matters, which are elsewhere accessible to naturalists.

The help that I have received from Newton's friends and from members of his family has, I hope, been in every case gratefully acknowledged. There are two—Mr. James E. Harvie-Brown and Lord Walsingham—whose names must be recorded here: both of them have followed their old friend, but not before they had given me incalculable help in my attempt to preserve his memory.

A. F. R. W.

April, 1921.

PREFACE

THE subject of this volume, a man of strongly-marked personality, was for more than half a century a leader among the naturalists of this country, a distinguished Professor in the University of Cambridge, a prolific and accomplished writer, and a charming companion, whose geniality, humour, and innocent little whimsicalities, drew around him a wide circle of friends. All who knew Alfred Newton will be glad that Mr. Wollaston, one of his pupils, should have put together this appreciative memoir. In so doing he has been fortunate in having had access to so large a number of the Professor's letters and journals as to give the chapters not a little of the character of an autobiography.

We see the future man of science entering Magdalene College, Cambridge, in 1848, as an undergraduate of nineteen. Six years later his youthful reputation gained for him, as the son of a Norfolk squire, election to the Norfolk Travelling Scholarship, with the aid of which he was enabled to make ornithological researches in Lapland and Iceland, and to visit the United States and the West Indies. These early journeys confirmed his bent towards the study of birds, and laid the foundation of his fame as one of the most eminent ornithologists of his day. He used to regret in later life that he had not travelled

more. He was indeed a born naturalist, and but for the lameness, which came from an accident in early boyhood, he would doubtless have become a dauntless pioneer in zoological regions as yet unexplored. Few bird-lovers could equal him in the quickness and sureness of eye which, even at a considerable distance, enabled him to distinguish a bird on the wing. The lameness, much increased by an accident in later years, greatly restricted the exploratory work which he might have achieved. It was most heroically borne by him, and was combated with two walking-sticks. He was too independent, however, to accept assistance if he could possibly do without it. In the yachting cruises which for some years I enjoyed in his company along the western coasts of Scotland, Ireland, and the Faroe Isles, he generally would land at every place of interest, even when a strong swell made it difficult to get into the boat. One could not but admire the tact with which he avoided the proffered hands of the crew, and his dexterity in the manipulation of his two sticks. His perfect coolness was remarkable on such occasions. He used to tell how once at Spitzbergen the dinghy slipped away before he had hold of the ship's ladder and he plumped into the water, but kept his pipe in his mouth, and so, as he said, lost nothing!

It was about 1863 that he made Cambridge his permanent home. In 1866 he was elected Professor of Zoology and Comparative Anatomy in the University. He then began at once with much ardour to improve the Zoological Museum, which in his hands became in the course of years one of the most important in the country. His kindly nature led him to take much interest in the undergraduates who showed a love of natural history. His "Sunday evenings" at Magdalene, when he received his students, academical

friends, and any notable men of science who might be visiting Cambridge, were highly popular. Mr. Wollaston testifies to their value from the undergraduate point of view.

Professor Newton was an indefatigable worker, never without some piece of scientific literature on hand, and often more than one. He was a keen critic of others, and not less of himself. He would write and re-write his compositions several times before they came up to his standard of arrangement and style. Above all he strove to secure accuracy in his own statements, and in his references and quotations. The pains taken by him with this object sometimes led to serious delays in the completion of his manuscript, which brought strong protests from the publishers, who had no sympathy with what they regarded as meticulous labour. If their complaints did not alter his habit, they at least filled him with indignation against the whole publishing tribe.

Newton was a strong Conservative, instinctively opposed to the abrogation of any ancient usage. This resolute stand on the *antiquas vias* led him occasionally into whimsical positions, some of which are alluded to in the following chapters. Yet it is nevertheless true that he was one of the earliest naturalists in this country to accept Darwin's explanation of the origin of species. Not only did he receive with joy and admiration this momentous revolution in scientific thought, he actually made some effort to induce his brother naturalists to do likewise, but without success.

The reader of the volume may, in some measure, appreciate the personal charm which endeared the Professor to those around him. His perennial bonhomie, his youthful enthusiasms maintained up to the last, his inexhaustible fund of anecdote and reminiscence, his

unfailing good humour, his love of work, and his generous co-operation in the doings of every fellow-worker who needed his help, together with the amusing predicaments in which his conversation sometimes placed him, combined to make a rare and delightful personality, and underneath it all lay the solid and lasting service rendered by him to the branch of science to which he devoted his life.

ARCHIBALD GEIKIE.

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David Barrow Munksg.
1 College Row, Calcutta

LIFE OF ALFRED NEWTON

CHAPTER I

CHILDHOOD AND SCHOOL

IF the boundary of the counties of Norfolk and Suffolk had not taken a sudden bend to the south near Thetford, so as almost to include the parish of Elveden, it is probable that the life of Alfred Newton, though it would undoubtedly have been the life of a man of distinction, would not have been the life of a naturalist. Fortunately for lovers of Natural History in general and of Ornithology in particular, his father, as well as owning Elveden Hall in Suffolk, possessed also a small property on the other side of the boundary and was a Justice of the Peace for the county of Norfolk, so that at a critical point of his career Newton was able to establish his claim to be the "son of a Norfolk gentleman."

William Newton, at one time M.P. for Ipswich, was the son of a planter, Samuel Newton of St. Kitts, in the West Indies, in the golden days of sugar, who lived in the island of St. Croix until he bought the Elveden estate in 1810 from the fourth Earl of Albemarle. He married (1811) Elizabeth, daughter of Richard Slater Milnes, M.P. for York, and aunt of Richard Monckton Milnes, first Baron Houghton, by whom he had six sons and four daughters. The eldest son, William Samuel, was one of the survivors of the Coldstream Guards at Inkerman, and retired with the rank of General. The second son, Robert Milnes, became Recorder of Cambridge and a Metropolitan Police Magistrate. Horace Parker was

first of his year at the R.M.A., Woolwich ; he served with the Royal Artillery in the Crimea and retired with the rank of Major-General. The youngest son, Edward, K.C.M.G. (1832-97), was at one time Colonial Secretary of Mauritius and subsequently Colonial Secretary and Lieutenant-Governor of Jamaica.

Alfred was the fifth son of William Newton of Elveden. In 1828 Mr. Newton with his wife, seven children and a suitable retinue of nurses and couriers, drove in the leisurely fashion of those days from Elveden to Pisa in the family chariot. On their way back through Switzerland in the following year the family halted for a time at Geneva, where Alfred was born on June 11, 1829, at a house, "Les Délices," * which was at that time far beyond the limits of the town, but has now become surrounded by the growing suburbs of Geneva. In the next year they returned to Elveden, which continued to be the family home until after the death of Mr. Newton more than thirty years later.

The Elveden Hall of those days was like many other East Anglian country houses, a plain Georgian mansion of brick, built about 1770 by Admiral Augustus Keppel, first and last Viscount Keppel of Elveden, upon whose death, in 1786, it passed to his nephew, the Earl of Albemarle. It is probable that there had never been an earlier house at Elveden, although the district had been renowned for centuries as one of the finest sporting countries in England. King James I. after visiting Newmarket in 1605, proceeded to Thetford, where he stayed for some time and was greatly struck by the

* In Morley's "Voltaire" (chap. iv.) it is stated that Voltaire "made himself a hermitage for the summer, called the Délices, a short distance from the spot where the Arve falls into the Rhone." This is without doubt the house in which Alfred Newton was born. One of his nephews writes: "The explanation why none of us should ever have heard about this before is that our elders considered Voltaire a horrible person whose name should never be mentioned by respectable people."

quantities of game he saw there. He was with difficulty dissuaded from enforcing a dormant proclamation, which would have had the result of making the whole country a royal game preserve, but contented himself by claiming all the sporting rights over the country within twelve miles of Thetford and appointing a royal gamekeeper at a salary of two shillings a day. The same course was followed by his sport-loving successors, Charles I. and Charles II.

In the early days of the nineteenth century, before the breech-loading gun had been invented, and when pheasant-rearing was yet in its infancy, the bags obtained at Elveden were not to be compared with the "records" of later years, but the sport there must have been as good as at any place in the kingdom.

A bag which I believe had never been exceeded was made at Elveden in my father's time, 331 or 332 pheasants in one day, of which over 300 were cock birds, and not one of them reared by hand. This was in the "twenties," before I was born.

It seems, too, that in those times game was less carefully preserved and the boundaries of neighbouring estates were not so strictly marked as is the case nowadays.

I have heard my father say that when he first went to Elveden, it was a common thing for a "gentleman" going from one country house to another to "shoot his way over," sending his servant and luggage by road, and that in particular in the autumn race meetings at Newmarket guests invited thence to stay at Euston made a habit of doing this, and he once found some distinguished persons pursuing a covey of Partridges on the Great Heath at Elveden. If anybody but a "gentleman" had tried this on he would have found the custom very different. It was also customary for officers in the

army, when *changing quarters*, to rove as they passed in search of game, and nobody said anything to them. You will find this mentioned in Col. Hawker's diary, but he, not being a gentleman, tried the same thing on when he was *in quarters* and there he found himself wrong.

Although, judged by modern standards, the quantity of pheasants and partridges was not very great, there was ample compensation, to a naturalist, in the existence of several rare birds which still survived in the Elveden district. It is true that the Great Bustard was on the verge of extinction—the last of the native stock was killed in 1838—but Montagu's Harriers were fairly common in the fens near Feltwell, Buzzards still nested in some of the big woods, and Ravens bred every year at Elveden, where they survived until 1870. The vast warrens of the "Breck," the woods and water-meadows of the valley of the Little Ouse, and the neighbouring Fenland between them made an ideal training ground for a naturalist.

The only detail that is known of Alfred Newton's childhood is an incident which affected profoundly the whole of his after life. When he was not more than five or six years old, he was playing some riotous game with one of his brothers in the library at Elveden and he fell and hurt one of his knees. Little importance was attached to it at first, but serious injury had been done and his right leg never grew equally with the other, causing him to be permanently lame. It may be that this accident prevented him from following his brothers' example and becoming a soldier, a career in which it may safely be said that he would have won certain distinction. But one very definite result which followed from his lameness was the encouragement it gave him in his earliest years to acquire habits of observation and contemplation. As time went on and he was debarred

to a great extent from the more active pursuits of his elder brothers, he came to rely more for companionship upon his younger brother, Edward. The affection—it might almost be called devotion—that Alfred and Edward had for each other was much more than is commonly seen between brothers, and it lasted unchanged until the death of the younger brother ten years before that of the elder. Edward's tastes were in many ways the same as those of Alfred, but though he was strong and active, he would do nothing that Alfred could not do, and it is said that as a child he wished that he might be lame too, so that they might, so to speak, "start fair." The two boys did everything together and were almost inseparable; the collection of birds and eggs was "ours," their dogs were the joint property of both, and their records of observations were kept in notebooks labelled "A. and E. N."

But it must not be supposed that he was debarred by his lameness from out-of-door amusements: he rode, and as a shot he was not much inferior to his brother Edward, who became afterwards one of the finest shots in England. Mr. Newton used to entertain many of his neighbours during the shooting season—the Newcomes from Feltwell, Lord March, George Hanbury, the Waddingtons from Cavenham, were frequent guests at Elveden. Another visitor was a "Mr. Bainbridge, a friend of my father's, who used to come and stay and on one occasion brought a bear pie; we were very much annoyed because he did not bring the skull." In the summer the brothers were very much occupied with bird's-nesting, and they began to form their collection of eggs about 1840. About the same time, too, they began to keep the careful records of the migration of birds, which were continued, with only a few intervals, for twenty years. One of their "dodges" was to fill a

pocket with gun-wads and as they walked about the woods and warrens at Elveden to transfer to another pocket one wad for each species of bird seen. In the evening they recorded their observations in an elaborate register,* and in this way they began to have some knowledge of the internal and local movements of birds as well as of the more conspicuous migrations of spring and autumn. From the keeping of birds in cages, which was naturally a feature of this period in their careers, they advanced to the more difficult business of keeping wild-fowl. The meres of Wretham and Stanford supplied them with several species of wild duck, with which they made experiments in hybridisation. More fortunate than the ducks, which often came to untimely ends, was a swan: "for the last six years I have had a Hooper, a most engaging bird—at times almost too familiar, for he invades the house, where his company is not always most agreeable."

In 1844 Alfred went to Mr. Walker's school at Stetchworth, near Newmarket, and from this time dates his life-long correspondence with Edward. When they were in England the two brothers wrote to each other every day, and by every mail when they were abroad; and each one kept carefully all the letters of the other. In early days they addressed each other by their pet-names, "Taff" and "Tedge," but these were considered childish by their elders, and a more formal epistle was marked "for the family," while their own particular business was "not to be shown." School at Mr. Walker's was not very arduous, and holidays, which depended on the getting of so many marks, seem to have been frequent. Alfred often drove over to Elveden, a distance of about nineteen miles, for Sunday, and one

* A specimen page of this register was published in the *Transactions of the Norfolk and Norwich Nat. Hist. Soc.*, 1871, vol. i.

day in February, 1845, he went with his father to Cambridge. He wrote from Stetchworth on March 1 :—

MY DEAREST TEDGE,

I must give you a long letter concerning my doings at Cambridge. I spent my whole time, $3\frac{1}{2}$ hours, in the Museum of the Phil. Soc.* I took one of my old notebooks and a pencil and sketched the most striking of the birds, writing down by the side the colours, etc. The most beautiful British bird was the Indian Bee-eater, of which I send you a coloured drawing. I also send you a drawing of the Great Bustard, of which they have 4 specimens, 2 m. and 2 f. ; it is the most magnificent bird I ever saw except the Capercaillie, the colours of which were too difficult for me to draw. They have three specimens of the *Otis tetrax*, a very pretty bird. There is a magnificent Golden Eagle. I am now quite certain that our bird is the *Linota montium* and not *Linota cannabina*. Our Redpoll is also a (young) male bird and, of course, it retains its immature plumage. The birds are, with the exception of a few old specimens, very well stuffed. A word now about the eggs, which are not much, the *Falco peregrinus* and *Otis tarda* being the lions ; I was much disappointed with that part of the Museum. I was surprised at not seeing a specimen of the *Regulus ignicapellus* there, as Mr. Jenyns is the premier with regard to the Nat. Hist. department. They have a few works on Nat. Hist., most presented by their authors. Audubon's "American Ornithology" is a daub. The "Nat. Hist. of the Voyage of H.M.S. *Adventurer* and *Beagle*," is a beautiful book. There is also a book by the author of "Taxidermy," on Freshwater Fishes, coloured by hand. I was rather disappointed in seeing the Kittiwake there, for unless it is an adult male in breeding plumage (which is snow-white) I don't think it is a very handsome bird. It is now quite dark, so good-bye, dearest Tedge.

I am your most affectionate brother,

TAFF.

* House in All Saints Passage, now the Hawks Club.

The notebook still exists and the drawings that he made that day are remarkable for their accuracy and for the skill with which he emphasised the most characteristic features of the birds drawn. He was always very fond of drawing, and although he never possessed very great skill as an artist, his drawings, whether of birds, beasts or landscapes, were invariably accurate. Many of his letters are full of drawings and later, when he was abroad, he illustrated the incidents of his travels with very humorous sketches. The following letter was illustrated with an excellent drawing of a Brambling :—

Stetchworth,
Friday, March 7, 1845.

MY DEAREST TEDGE,

I dare say you will like to hear how my Brambling* is. He is perfectly well and is, (considering that he was only caught yesterday) very tame, much more so than Skelly [a Starling] is now. He goes on picking about while I am standing at the cage. I have given you a little sketch of Brammy's head, but I can't describe his markings they are so beautiful. There were 5 caught (in a clap net), 2 m. 3 f.; the 3 unfortunate females were sent to Ditton with about 100 other birds for a shooting match and were shot. The other male bird fluttered itself to death in the store cage and was roasted and eat before I knew of it. They are called here north-cocks. The man who caught them is going out again to-morrow and so I trust I shall be able to get some more. He caught some redpolls and reed sparrows, etc., so I can probably get some. His prices are very *reasonable*, 1d. or $\frac{1}{2}$ d. for *each* bird. The reason I gave 6d. for mine is that the man's little girl had picked it out of the others for its beauty and had taken a great fancy for it. I have not got a very secure cage for him, but I keep

* *Fringilla montifringilla*.—Beak yellow, tip black; nape snow white, ear coverts black with green reflexions; throat pale crimson-tawney, a round white spot in the middle of the neck; the rest of the head mottled black and white.

him covered up and he does not try to get out ; I am trying to borrow a cage. Many thanks for your letter. When do you expect to get a siskin ? Thank Car for her line, I must write to her in a day or two. I shall get the holiday to-morrow as I have now got down 76 marks. Love to all with Willy.*

I am yr. affecte. brother,
Taff.

In many of his letters and, very likely, in his personal behaviour to his brother, Alfred adopted very much the attitude of the elder brother when they were boys ; he was constantly correcting small mistakes in Edward's letters and condemning any tendency he might have towards making exaggerated statements. It was a useful training for the younger boy, who learnt early to make careful observations and became an excellent field-naturalist, "better than the best gamekeeper and as good as a warrener," as Alfred said of him in later days.

As well as ponies and ducks and other animals they kept dogs, "Crab" and "Wasp," and often a family of puppies. Alfred used to say that he was always very "doggy," but in after years, when he no longer lived in the country, he thought it was not kind to keep one in a town. When "Crab" died, he wrote to his brother from Stetchworth, on May 3, 1845 :—

Poor Crab, I can do nothing but lament over his death, in fact I can hardly believe it. Pray save some of his hair, and have him buried honourably in the garden as near the poor old pony as possible. I am now so excessively sorry that I did not sketch his head when I was last at home. I will certainly do the others directly I go back. There is certainly a fatality attending the Wasps. How many puppies are left ?

* Their nurse, Williamson.

I think you have made some mistake as to the arrival of the *Hirundinidæ* at Elden.* You have written to me that both Swallow and House Martin arrived at Elden on April 4.

May I be allowed to say you have never before mentioned on what day the Crow nidicated, and therefore I don't see how you can have written it to me 500,000,000,003 times. You never have said whether you have a *hooded* crow's claw for me, if not, do you know of any old one, as I have not got one? The Redbacked Shrike arrived this morning.

I have been to the Dyke. I found a redbreast's nest with 5 eggs, I took one. Malcolm found a pheasant's, which of course we cribbed. This is "en particulier." I went to try to get a Longtailed tit's egg for Reynolds but alas!!!—— I bought a female wryneck alive to-day for 6d. She is very tame, sits on my finger and runs ants thro' with her long tongue. She has been caught only two days. The boy won't tell me how he caught her I really can't write any more. I will write to my sisters to-morrow.

Believe me,

Dearest Edward,

Yr. most affecte. brother,

ALFRED.

The letter is illustrated with an admirable sketch of the wryneck sitting on his finger and eating ants.

In 1846 he went for a few months to a tutor, the Rev. Joseph Horner, vicar of Everton, near Biggleswade in Bedfordshire, and in October, 1848, he entered as a pensioner at Magdalene College, Cambridge.

* Elveden used to be pronounced Elden.

CHAPTER II

EARLY INTEREST IN NATURAL HISTORY

MAGDALENE in the "forties" was a small college, and very little is known of Newton's undergraduate days. He twice won the College prize for an English essay,* and it is said that on one occasion he coxed a winning four. The only other event that is known of this period is that he assisted his friend Charles Pierrepont Cleaver and two or three other undergraduates in executing a painted window for the College Chapel. In his second year he was elected a member of the Pitt Club, which he continued to use as a convenient place for writing letters during more than half a century. Although he was a very fair classical scholar when he went up to Cambridge, the Classical Tripos, which in those days was only open to men who had already taken honours in Mathematics, did not appeal to him. The Natural Sciences Tripos was then in its infancy (the first examination was held in 1851), but he was not attracted by Chemistry and Physics, which were the most important subjects in the school at that time. He made the acquaintance of Henslow, the famous Professor of Botany, and long enjoyed his friendship; his tastes, however, already inclined him strongly towards the other branch of Biology, and he regretted afterwards that he had never become even a passable botanist. He graduated on March 10, 1852, but as that day fell after Ash Wednesday he was in the phraseology of the day a *Baccalaureus*

* His nephews and nieces founded an "Alfred Newton English Essay Prize" at Magdalene in order to perpetuate his memory there.

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Artium ad Baptistam, and consequently, by the regulations then in force, was reckoned as a bachelor of 1853.

"In 1697 the Rev. Drue Drury bequeathed to Magdalene College the perpetual advowson of the vicarage of Steeple Ashton, Wilts, and the impropriate parsonage of the said place, to found a Travelling Fellowship for a 'gentleman's son of Norfolk.' In 1847 the value of the Fellowship was £366 gross, £268 net." *

Owing to the fortunate circumstance mentioned above of Mr. Newton holding the commission of the peace for Norfolk, although a resident in Suffolk, and thanks to the good offices of the then Master, George Neville-Grenville (appointed Dean of Windsor in the same year), Alfred Newton was elected in the spring of 1853 to the Drury Travelling Fellowship, which happened to be vacant. Unfortunately the church at Steeple Ashton was sadly in need of repair at that time; funds were diverted to pay the cost of restoring the chancel, and the slender emoluments of the Travelling Fellow compelled him to stop at home. He stayed in residence at Cambridge until the autumn of 1854, when he went to Elveden, which was his home until the place was sold in 1863 after the death of his father.

For some years now he had been corresponding on Natural History subjects, chiefly ornithological, with naturalists all over the country; among these may be mentioned Yarrell, Gould, J. H. Gurney, and Sir William Jardine, to whom he had become known through his contributions to the pages of the *Zoologist*. But his most important correspondence was with John Wolley. The two men had been corresponding for some three years, and in October, 1851, Wolley first called on Newton in his rooms at Cambridge, after which their acquaintance ripened into a firm friendship. Wolley's work was

* From "Magdalene College," by E. K. Parnell. (F. E. Robinson & Co.)

destined to have so profound an influence on that of Newton, that a short account of his life may fittingly be given here. He was the eldest son of the Rev. John Wolley, afterwards vicar of Beeston, Notts, and was born in 1824. From Eton, where he spent six years, he went to Trinity College, Cambridge, in 1842. He graduated in 1846 and in 1847 he went to Edinburgh, where he studied medicine for three years. His vacations were devoted to the pursuit of Natural History, and on his egg-collecting expeditions he gained a remarkable familiarity with the most remote districts of the British Islands.

John Wolley's more important travels and ornithological discoveries may be told in Newton's words :— *

He left England for the North in April, 1853. He had become persuaded from careful consideration of many facts that the country between the head of the Gulf of Bothnia and the Arctic Ocean must be the breeding place of many birds whose homes were unknown. He was delayed both at Gottenburg and Stockholm by the difficulty of getting local information, and was finally compelled to start knowing very little of what was required. He went up with the Spring, instead of being beforehand with it, and his progress was slow.

When he got to Muonioniska he found himself too late for the eggs of the Birds of Prey, and I now have the hatched-out shell of a Rough-legged Buzzard's egg, which was the only bit of such a common species as that which he procured. In those days no one in England had an authenticated egg of that bird. It was the same with Cranes and many others. Siberian Jays (the eggs then quite unknown) had hatched out long since. He got a single nest of Temminck's Stint and some 4 or 5 Jack-Snipes' (both unknown in England), about as many nests of Broad-billed Sandpiper, but that had before

* Letter to J. A. Harvie-Brown, April 7, 1874.

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been found. In Ducks he did better, but altogether his results were meagre. However, he was anything but discouraged. He resolved to winter in the country and visit every house within a large district to make inquiries and invite people to supply his wants. This he did most effectually, and the following year he had Gyrfalcons', any number of Buzzards', Shore Larks', and many other valuable eggs of his own taking. Still Pine Grosbeak, Siberian Jay, and above all Waxwing, all escaped him. He came home for 6 weeks in August, 1854, and then returned for another winter, working as before. In 1855 he pushed on to the Varanger, and then Hudleston and I joined him. With him as our pioneer we did very fairly, and returning home by Muonioniska we found Siberian Jay and Pine Grosbeak had been obtained.

The winter of 1855-6 he was at home; in spring of /56 he went to Oeland and Gottland,* which proved a failure, and then pushed on to Muonioniska, where the great discovery of Waxwing had just been effected. There he wintered, again in spring made a fresh incursion to the Varanger—or very near it—got Buffon's Skua, and finally Smew. Then he returned home, keeping up an active correspondence with people in Lapland. In 1858 he went to Iceland. Then his health gave way and in 1859 he died. Still his seed bore fruit, and Snowy Owls' eggs came to me in 1860 or /61—I forget which.

I believe that not one half of his successes would have been attained but for his persistently wintering in Lapland and getting to know *all* the people of the country. At the same time I am not going to say that for you it would be necessary to winter in the Petchora. You have fewer objects to attain and this extreme measure may not be necessary. Grey Plover, Little Stint, Curlew Sandpiper, and Bewick's Swan and Steller's Duck alone demand your chief attention. He had not only all these to inquire about, but twice as many besides.

* "Led astray by a statement of Westerlund that he had found *Larus minutus* breeding in Oeland, he wasted a season there; otherwise he would most likely have been on the scene when the Waxwing discovery was made. A. N."

Wolley's letters from Scandinavia attracted Newton strongly, and the fauna of northern countries always interested him, perhaps, more than that of any other region. Wolley was an extremely accurate and careful observer, who accepted nothing on hearsay evidence, with the result that his collections gained greatly in value from the complete authenticity of every specimen. The following extract from one of his letters * shows something of his energetic and painstaking nature and at the same time gives a description of bird-hunting in Lapland, which is as true to-day as it was in his time.

To find the marsh birds' nests it is useless to be alone ; the population here is very scanty, and just the fortnight that the birds have eggs every man, woman and child is busy with his own affairs, and laying in everything he will want for a long winter, so that it was very difficult to get any one. I had to pay high wages to the people who went with me to the marshes, and besides to give them two or three bits of silver for every egg they found. I worked night and day, often up to my middle in mud and water, under a scorching sun or in drenching rain, amidst clouds of gnats of a most greedy and venomous kind, which made the night more unpleasant than the day. To manage ten or twelve persons, beaters, etc., is no easy thing when you are well used to them and they to their business, but when all your men are quite unused to the kind of thing, when your Swedish companion cannot understand your expressions, such as " take a beat," " quarter the ground," " keep the line," when he has to repeat these to a Finnish interpreter and he again to explain them to the natives, and when after all you have to make these natives follow the explanations, it is both difficult and fatiguing and involves great loss of time.

Then the places frequented by the birds one want are few and far between. The people do not know the kinds,

* Dated, July, 1853.

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and one had no clue at first to the local names. At one time I am told of a place, 7 or 8 miles off, where there are many wading birds; going there with full forces I find there are certainly many Curlews. Another time I hear of a famous lake, 20 miles off, renowned over the country for birds; every bird I ask for is to be found there; coming to it I find scarcely anything: it is an autumnal *rendezvous* for Ducks and Geese.

Mosquitoes, fleas, bugs, midges, dirty houses, no bed-clothes, no bread, sour milk, reindeer flesh raw and as hard as a board, are not luxuries. If you want to wash they bring you the same little sour bowl out of which you drink. All these little things make a bird-nesting expedition here very different from one when one leaves a comfortable English house in the morning to return to it in the evening. I find myself lose strength and spirits, so that it requires some resolution to continue my exertions. Now, however, I am in excellent winter quarters, a clean house, capital cook, and every necessary, and if I were to remain here next summer I should do much more in the bird-nesting way, from the benefit of experience both as to names, localities, and habits, besides as to the best mode of keeping oneself in health and spirits in the wilderness. But I think of going to Spitzbergen. I am informed that a vessel goes from Hammerfest occasionally to hunt reindeer and kill walruses there. In the winter I propose to drive my *pulka* with my swift-footed rein over to Alten and make inquiries, and if I find it feasible, I shall certainly try what I can do in Spitzbergen.

It was the custom in those days for ornithologists to attempt to defray part of the cost of their travels by selling some of their duplicate specimens of skins and eggs. Newton undertook to dispose of Wolley's specimens, and the annual sales at Stevens' Auction Rooms of the rarities from Lapland were events which attracted a crowd of naturalists from all over the country. There

was very keen competition among collectors to secure specimens of the newly-discovered species, and high prices were obtained for the eggs of the Waxwing, Pine Grosbeak, Siberian Jay, etc.: thus £5 10s. was paid for the first egg of the Waxwing, £4 5s. for an egg of the Pine Grosbeak, and 25s. for a single egg of the Siberian Jay. Greatly exaggerated rumours went about concerning the profits made by these sales. The total amount realised by Wolley's seven sales from 1853 to 1859 did not exceed £940, and it is safe to say that the cost of obtaining the specimens greatly exceeded that sum. In 1860, after Wolley's death, Newton held another sale of a large number of his duplicate specimens; the sum amounted to about £200, which he devoted to the publication of the first part of the catalogue of Wolley's collection, the "Ootheca Wolleyana."

It was in 1855 that Newton made his only journey to Lapland. With his friend W. Hudleston Simpson * he crossed the North Sea from Hull to Christiania at the end of May. It blew half a gale and the ship, "being much impeded by a railway carriage in the fore part of the deck," made only four and a half knots an hour, but Newton alone of all the passengers suffered not at all. From Christiania the railway extended at that time only as far as Eidswold, and thence they drove to Trondhjem in carriages, being accompanied a part of the way by one of the earliest mountaineers in Norway, Blackwell,† with the Chamonix guide, Gideon Balmat. By covering the last hundred miles into Trondhjem in twenty-eight hours they arrived just in time to take passage in the weekly mail steamer to Hammerfest. As they went northward up the coast all the days and most of the nights were

* Afterwards W. H. Hudleston, F.R.S.; died 1909.

† Eardley J. Blackwell: made one of the earliest ascents of the Wetterhorn in 1854.

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spent on deck in noting birds new to them and in admiration of the fantastic beauty of the Lofotens. At Hammerfest they were delayed by gales and snowstorms for twelve days, which they spent in the very uncomfortable inn of that unattractive town. On June 16 they passed the North Cape, and two days later, after visiting Hornö, which was then hostile territory (being in the Province of Archangel), they landed at Vadsö. On the 19th they were joined by Wolley, who had just returned from his expedition to Lake Enare and the Patsjoki, where he had discovered the nest of the Hooper.* He brought with him a couple of young Sea-Eagles alive and a train of Jays and Grouse, as well as a mass of bones, skins, feathers, down, and so forth. Beside the precious Swan's eggs, he had brought very many more, and the children of Vadsö were waiting for him with all the eggs they had collected for him during the season, so the three men set up blowing eggs until five o'clock in the morning, and it is not surprising to learn that the baker's house (where they stayed) seemed to have been turned into a poulterer's shop. In a day or two lodgings were found for Wolley's live birds, and the party then set off in boats up the Varanger Fjord, where they remained for a month. They did not attain the principal object of their search, the breeding place of Buffon's Skua, but they succeeded in finding the nests of many rare and interesting birds. Newton and Simpson were the first Englishmen to find and identify the eggs of the Red-throated Pipit (*Anthus cervinus*), and they obtained many others that were new to them, such as Red-necked Phalarope, Temminck's Stint, Bluethroat, Velvet Scoter, Turnstone, Shore Lark, and others. They made an expedition to the Tana River, where Simpson caught

* J.W.'s very graphic account of this discovery may be read in "Ootheca Wolleyana," vol. ii. p. 495.

salmon, whilst Newton accused himself of being the only Englishman who ever visited that famous river without the desire to cast a fly.

After investigating the remarkable raised beaches of the Varanger Fjord, they returned to Hammerfest and thence went by steamer up the Lyngen Fjord to Skibotn. That region had been very seldom visited by Englishmen in those days, and their journey across the peninsula to the Gulf of Bothnia was considered a very creditable feat.* After crossing the watershed they found boats awaiting them at Kilpis-järvi, and in these they descended the Muonio River to Wolley's headquarters at Muoniovara. Nearly a month was spent in collecting and packing the eggs which Wolley's collectors had obtained for him. Newton traversed the famous swamp—no light undertaking for a lame man—to see the spot where the first Crane's nest had been discovered two years before and Simpson had good sport with the wild-fowl with which the Muonio abounds. In September they continued their journey in boats down the river to Haparanda, whence they returned by way of Stockholm to England.

Though he was able only once to visit Lapland, Newton always spoke of it as a sort of ornithological paradise, and years afterwards, as the present writer can gratefully testify, he was ready to help and advise younger naturalists who proposed to follow in his steps.

When Mr. Harvie-Brown returned from a Norwegian trip in 1871, he advised him to go farther east into a country which at that time was almost unknown territory to naturalists.

I met Mr. Alston in London and was very glad to find

* An excellent account of this part of their journey was written by Simpson for *Fraser's Magazine*, April, 1856.

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you and he had enjoyed your trip to Norway so much. I hope you will go again to the North, but pray take my word for it that if you only reach a good high altitude, *the further eastward you go the more you will get*. I believe the land of promise for an oologist is in N. Finland between the Kemi River and the White Sea. Anything I can do to further your explorations in that direction you can entirely command.

East Finmark is nearly as well known as the Scottish Highlands, you *might* get something new there just as you *might* in the Highlands, but the chances are greatly against it. Northern Finland is quite an untouched country.

The Snow Bunting ought to be found without difficulty in Scotland. I never had any trouble in marking a bird to her nest.*

Three years later Harvie-Brown had an opportunity of taking Newton's advice, and planned to go farther east still to the Petchora.

I am delighted to find that the Petchora scheme is coming off and I envy you not a little. The only species I can add to your prospective bill of fare is Bewick's Swan. That and the Curlew Sandpiper seem to me the most urgent of the *desideratissima* with which you are likely to fall in, and I would beseech you to spare no trouble about them, and not to be discouraged if you do not get *eggs* this year, provided you can only ascertain that these species breed there. Remember how Wolley worked for years in faith and was rewarded at last. You will, I am afraid, find it a very hard expedition, and I hope you will not knock up under the miseries of hunger and cold. The Samoieds are now I dare say peaceable enough, but in the days when Wolley was thinking of going to the Petchora they were reported by the Russians to be very savage. I don't know that anything on the fauna of the country has ever been published, certainly

* Letter to J. A. Harvie-Brown, October 28, 1871.

there is no zoology that I could ever find in Keyserlir. "Reise nach Petchora Land," so that all ought to be interesting and I trust you will make copious notes for at least a paper in the *Ibis*, if not for a book.

It would be well to study carefully the diagnostic characters of Bewick's Swan before you go, so that you may know it from the Hooper through your glass, if you cannot get near enough to shoot it. Curlew Sandpiper with its white rump and red head and neck is unmistakable, but a breeding plumage skin to show the natives would not be a bad thing to take with you.*

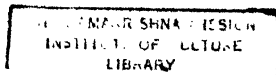
Persons voyaging to Polar Seas were always appealed to by him to bring back specimens for the Museum, and among them was his friend Colonel (then Major) H. W. Feilden, who served on board H.M.S. *Alert* in Nares' Expedition of 1875-6.

When the proceeds of the German Arctic Expedition were sold at Bremen some time ago we bought a skeleton of a Musk Ox (bull) supposed to be perfect; the money was paid and some time elapsed before it was overhauled—then we found that the bones of the left metacarpus were wanting! Can you then among other things secure us an *Extra left fore leg of a Musk Bull*, if you fall in with any? N.B.—Anything, I am sure, pertaining to *Ovibos*—even the dung in a bottle—would be most valuable, as the poor beast is not long for this world. I do wonder if this next month will see you cut the Knotty tangle.†

The "knotty tangle" was the question of the possible discovery of the hitherto unknown breeding-place of the Knot. Newton had been chaffed by a writer in the *Saturday Review* because he had suggested that Knots might be found breeding on green meadows near Smith Sound. He begged Feilden to help him out of the scrape,

* Letter to J. A. Harvie-Brown, March 28, 1874.

† Letter to H. W. Feilden, June 21, 1875.



17244.

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and before the expedition sailed he gave him as a parting present a knife with the following inscription :—

HOC FERRO
NE MODO ALEXANDRI
SED ALEXANDRI PRECEPTORIS
SECETUR
NODUS *
HENRICO WEMYSS FEILDEN
POLUM PETENTI.

A.N.

* What *the* Knot is requires no explanation to an Ibis.

As a matter of history, it may be recorded that the breeding-place of the Knot was discovered during the course of that expedition. In July an old bird accompanied by three nestlings was obtained near the *Alert* on Grinnell Land, in $82^{\circ} 33'$ N. latitude ; and in the same month Mr. Chichester Hart, naturalist to H.M.S. *Discovery*, obtained in $81^{\circ} 44'$ N. latitude a brood of four young birds, disturbed from the nest. So the Knotty tangle was cut.

By way of recognition of Newton's services to the Expedition, in advice to the naturalists and care of the specimens they obtained, a newly discovered glacier was named after him by Admiral Sir George Nares. The Alfred Newton Glacier discharges into the sea on the west side of Smith Sound in $78^{\circ} 30'$ N. latitude, between the north entrance of Baird Inlet and Leconte Island.

"The compliment paid me by Nares' Expedition is certainly a great one, though one can hardly look on a glacier as a very abiding monument, and it suggests a cold and grinding disposition which I hope is not mine." †

In 1857 Newton went to the West Indies and visited the islands of St. Croix and St. Thomas, in the former of

† Letter to A. C. Smith, March 26, 1879.

which one of his brothers, Francis Rodes, was living. He made many interesting observations on the birds of the islands and afterwards, with his brother Edward, contributed a valuable paper on the Birds of St. Croix to the first volume of the *Ibis*. He was strongly attracted by the beauty of the tropical fauna, which he saw then for the first time—

I think it is quite worth crossing the Atlantic to see Humming-birds. No pen can describe and no pencil depict the suddenness with which the little fairy appears before you, the rapidity with which, on wings whirring like a cotton mill, he visits flower after flower, and then when you least expect it, away he shoots in pursuit of a rival. All this while (about thirty seconds) you are holding your breath for fear of blowing him away. However, his glittering feathers are quite unseen by men on such occasions; one may catch a glimpse of their sheen when he happens to mount aloft on a dead tamarind bough and draw his primaries through his mandibles, but then it just depends upon whether he and you are relatively in the right position for the light.*

An interesting note relating to Humming-birds is recorded in a letter written to his brother :—

I think the only other ornithological occurrence of interest that I have met with is that the other day I saw a Humming-bird fairly caught in a spider's web. The bird came into my room and went furiously spinning round and round the ceiling; at length it touched a pretty big spider's web, and was quite powerless. The net was, luckily for the bird, an old, deserted one and very much tattered; therefore after hanging for some seconds, if not minutes, a series of violent struggles released it. I caught the bird subsequently and found its feathers quite bound up with the web. It has been often asserted by the old writers that Humming-birds

* Letter to T. Southwell, December 8, 1857.

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get caught in spiders' webs, and as often doubted. Gosse declares that he is sure that no web could ever for a moment stop the flight of any, even the least, species of Humming-bird ; now here I have proof positive to the contrary. It might be said that the bird was already fatigued by its attempts to get out of the room ; but then it must be remembered on the other hand that the web was an old one, deserted and in rags ; had it been in good order I much question whether the bird could have escaped.

From the West Indies Newton went to New Orleans, and thence to Boston and New York, where a serious illness prevented him from carrying out an extensive tour in the United States and Canada. But his visit to America, though it was never repeated, gave him a cordial liking for American men and institutions, and it was the beginning of an acquaintance with the leading naturalists of the country, Agassiz, Baird, Coues, and many others, with whom he kept up a life-long correspondence.

Another circumstance connected with this journey is that he had the satisfaction of "teaching young America how to blow eggs." Instead of the old method of blowing eggs with two holes, he explained to them the use of the drill and blowpipe, by means of which the contents are removed through a single hole in the side of the egg. His paper, entitled "Suggestions for Forming Collections of Birds' Eggs," was published in their *Miscellaneous Collections* by the Smithsonian Institution, in 1860.

Even when he was most busily occupied, Newton always found time to write to an ever-increasing number of friends in England and elsewhere, to make arrangements for the annual meeting of ornithologists and to negotiate exchanges of specimens and so on. One of his

most intimate friends and frequent correspondents was H. B. Tristram,* who had just at this time returned from a very successful expedition to Algeria.

Boston,
September 1, 1857.

MY DEAR TRISTRAM,

I can only afford you just time enough and this scrap of paper to express my exultation at your safe return from the most unprecedented campaign that Algeria has ever been the theatre of. The glories of African generals of all nations and times sink to nothing when compared with yours ; Sesostris, Marius, Alexander, Menon, Abercromby, with all the moderns, Bugeaud, Sir Harry Smith, and Pelissier, are nobodies. Moses only spoiled the Egyptians, but to have carried off such a booty under the noses of French naturalists is a much greater triumph, and the Algerians seem to me to have expiated all their past cruelties to Christian slaves by the way they have assisted you. In the plenitude of your wealth, however, I hope you will not forget one who on whichever side of the Atlantic and the Tropic of Cancer he has been, has been always wishing for your success ; not, though, that I can offer you anything more like "reciprocity" than that which under the same name Brother Jonathan holds out to the Blue-nosed fishermen. But I am one of those who will readily hoard up *quicquid de Libycis verritur areis*. I have seen Dr. Brewer and his collection, of neither is much to be said ; the Dr. is reserved to an astonishing degree for a Yankee, and has evidently never enjoyed anything like those glorious days of last September when you met me at Cambridge, the memory of those talks *de omnibus avibus*, etc., has cheered me many a time for the last eight months, when with the exception of two hours with Downs at Halifax (a real out and outer) I have not met with a soul who could converse on the subject. His collection is extremely moderate considering the scope of it and what

* Canon of Durham, D.D., F.R.S. ; died 1906.

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must have been great opportunities, the only egg I *coveted* a Hooded Merganser's, of which you have one.

What is to be done about an Oological conference this year? You will be the great difficulty, or rather I should say the time and place that will suit you. I trust sincerely your health is better.

Yours most truly,

ALFRED NEWTON.

Another of Newton's early correspondents, and later a life-long friend, was John Henry Gurney, of Norwich. From 1844, when they became acquainted by means of a Sea Eagle, until Gurney's death in 1890, they kept up a frequent correspondence, mostly about birds of prey, of which Mr. Gurney's famous collection is now in the Norwich Museum. He was also a generous contributor to the Museum at Cambridge.

CHAPTER III

VISIT TO ICELAND

IN the year following his first visit to the West Indies Newton went with John Wolley to Iceland. He had for a long time cherished the idea that the Great Auk, or Gare-fowl as he always preferred to call it, might still survive on some of the skerries off the coast of Iceland. Wolley, always enthusiastic, was very sanguine of success, and in the spring of 1858 they resolved to put their theory to the test. The story of their journey is told in two letters to Edward Newton :—

Reykjavik, May 2, 1858.

I left Elveden on April 20, and reached Edinburgh on the 21st, where I found Wolley just arrived and in good force. The next morning we got off about 9.30. A perfectly calm day, warm for the time of year, but misty ; the Firth of Forth like glass ; some common sea-birds about but not many, besides Velvet Scoters and Gannets. At sun-down, 8 p.m., we were north of Aberdeen. The next morning (being off the Pentland Firth) was just as still, and we made good speed ; towards afternoon we sighted Fair Island, lying between Orkney and Shetland, and soon after saw the lighthouse on N. Ronaldshay, the land being invisible ; later still we sighted Foula, which we only lost about dark. Only common sea-birds about. On the 24th I saw Fulmars from my port-hole window before I was up. A few Wheatears joined us and a couple of Pipits appeared. About 1 p.m. we made Suderö, one of the Faroerne ; before long we encountered two Great Skuas—the first I

had ever seen—and soon after four dropped anchor at Thorshaven, the capital. Here we landed a good many passengers, for we had so far been rather inconveniently crowded; among them the Stiftingsampteraand or Governor, whose arrival was the cause of a deal of gunning. Wolley and myself went ashore with the mails, consisting of twenty letters (the first post received this year from Denmark). We walked about and viewed the town and suburbs. All the houses are covered with grass, but such as we entered seemed comfortable. They are built without the slightest reference to the inequalities of the ground, but with regular though extremely narrow streets. We found the people sowing their barley, turning up the ground with an instrument, the inventor of which must have had a marrow-spoon in his mind which he enlarged to the dimensions of a cricket bat. Spade it can hardly be called; yet even this elaborate implement is not required in reality, for there being little or no subsoil in Færo, about an inch and a half is as much as seems to be dug up. All the male population seem dressed in uniform, a brown homespun loose jacket, sometimes with silver buttons; a striped woollen cap, the end hanging down; knee breeches, worsted stockings and shoes without soles, built on the lines of a moccasin or a Turkish slipper. One of the Syssemaand, Müller by name, is a great “pal” of Wolley’s and he entertained us to supper before we left, which we did about midnight, the moon and the high latitude between them making it quite light. On shore we only saw some Hooded Crows, a Wheatear and Golden Plover. As we left Færo we got a tolerable Atlantic roll which continued increasing for the rest of our voyage. We now found our party reduced considerably, not only by the desertion we had experienced at Færo (one of whom was a most extraordinary-looking German Professor, whose week-old beard and bear-like projecting snout did him with a most grotesque expression endue,) but by other causes which kept a considerable number of Icelanders, both male and female, to their berths. Wolley, however, behaved remarkably

well and was never fairly under the weather. We had two Scotchmen on board ; they were from Glasgow and were, and are, prospecting to see if they can open any advantageous trade. Both of them good sort of fellows. Wolley would not have it, but I am sure I saw an *Alca alle* on this day ; the next day we both saw two, all appeared to be in good summer dress ; the first of the species, of course, he or I had ever seen. We now had rather roughish weather with rain. Lots of Fulmars about. In the afternoon we fancied we saw land, which towards evening it clearly proved to be. Just about sundown, somewhere towards 9 o'clock, a Wheatear came on board, and evidently wished to pass the night with us, but I doubt if the poor beast succeeded in doing so. Next morning we passed the Westmann Islands about 2 o'clock, but it was thick when I got on deck and land was not visible ; soon after we sighted it again and never again lost it. About noon we passed the celebrated Meal Sack, but we must have been nearly two miles from it. It is certainly well named, for in one direction it has very much the sort of look of a sack half filled, with the sides turned down, and I do not doubt but that in the season it is white enough on the top. On the landward side runs out a low shelf or rock, whereon the Greak Auk is supposed to have bred. Outside at the distance of about four times its diameter lies a small low skerry, which had a very inviting appearance, but the water is said at times to go right over it.

There were a great quantity of Gannets and Fulmars about, also Kittiwakes and the common *Alcidæ*. We looked of course for the Geier Fugle, but in vain. It came on to blow pretty smartly, and I think our Captains (for we had both an English and a Danish one on board, who will I take it have a real good cat and dog life of it during the summer) were glad when we let go our anchor off this place.

We were much amused at an enthusiastic young girl rushing up from below as we passed a solitary grass-covered house, and in spite of the traces of so much

suffering on her face, exclaiming, "Ah, there is Ness! there was I born!"

17244.
Just before we anchored I had a good view of a Pomarine Skua. Eider-ducks, Ravens and Grt. B. b. Gulls about. When we landed we came straight up to the Hotel or Club as they call it, where we obtained lodgings and where we still are, pretty well accommodated, faring much better than I had expected, though we have to eat both Eider Ducks and Merganser. The next morning we called on the Rector of the Native School, from whom we then and since experienced much civility and coffee. Afterwards we did ourselves the honour of visiting the Governor, Count Trampe, nephew of the man of that name who was here in Hooker's time, and was taken prisoner by Jorgensen. With him also we got on very well, and between these two we now know nearly every one of consideration in the place. The next three days it blew a great gale; so much so that we were unable to get our heavy baggage from the steamer; but this was nothing to the awful night we had on Friday when we went to eat a "bit of bread" with the Rector. Three or four of the biggest swells were asked to meet us, and a terrible quantity of claret and punch had to be drunk; however, we got home after two in the morning, but I can honestly say quite sober, and thanks to the purity of the drinks were none the worse the next day. We called on the apothecary, who has the reputation of being an ornithologist, but found nothing of interest in the few skins he had—Iceland Falcon, *Anas Barrovi*, *A. histrionica*, etc. We saw a picture of the last Great Auk; probably the one seen by Pliny Miles and Mrs. Bushby, a wretched performance; this bird was said to have been taken at the Meal Sack in 1846.

We have since seen a man who lives at Kirkjuvogr, the nearest village to the Meal Sack. He has made four trips there, the last in /56, when no Geier Fugles were found; on the previous occasions, 24, 7, and 2 were obtained. We are to go to him in about a fortnight, and then to make the expedition in two boats. I do not

think there is much risk, if, as we shall do, we wait for favourable weather. We are now in treaty with a Divinity Student who comes from that part of the country to make a special journey to the *Eastern* Geier Fugle skerry for us, as it is impossible for us to visit both that and the Cape Reykjanes locality within the necessary time. It will be an expensive business, but it is, I am inclined to think, the best card in the pack, and one I should never forgive myself for not playing, if afterwards it should turn out the birds were there. It is very doubtful if this rock, lying as it does 40 miles out, has been visited for a hundred years.

This fellow, by name Magnussen, will not be back by the time the steamer sails next. He only came to us this evening, and we have hardly considered the terms, but I think we shall engage with him. He is highly recommended by the Rector, but there is some difficulty about his going, as he ought to pass an examination at the College here just about the time; but the Rector has promised to see if that necessity can be avoided, so sensibly do they regard such matters here. Only fancy at Cambridge the Vice-Chancellor letting a man off his Little-Go because he was wanted to go and look for a Great Bustard's nest !!! But Herr Rector Jonsen is a real good fellow. The Land-Physicus, Herr Hjalðalin, is to go with us to Kirkjuvogr, and we are to take as guide Geier Zoega, the man Bushby recommended. I very much want to go first to the Geysers, as nothing ornithological can yet be done (for I should think nothing but Iceland Falcon has eggs now, and we must give up hope of taking any ourselves as they do not breed within many days' journey of this), and we may afterwards be hurried for time; but Wolley requires gentle managing, he is too fond of delaying things.

May 3.

We have just heard that the steamer is positively to sail to-night, so I must make haste to finish my letter, especially as a learned professor of the Icelandic tongue is expected every minute, to give us our second lesson in

his language, and Wolley is studying his task, which is a Saga and seems to be written intentionally for beginners, as it opens, "There was a man and his name was Grim." The pronunciation is the most difficult thing I ever heard, it beats Finnish into fits, and the spelling seems to be no guide to it. I want to know a few words as up the country there will be no one who can speak Danish. We have a disagreeable wet day, but altogether the weather is better than I expected it would be, though we have had a Greenland gale with snow, hard frosts several nights, and ice to bear a stone. A good-sized lake, close to the house and the town, has been twice frozen since we have been here. Round its shores I have seen Red-shanks, Ringed Plover and White Wagtail. Wheatears are seen among the buildings of the town, and close by among the small enclosures of stone walls are Snow Buntings and Golden Plover. Ptarmigan are not found near; there is supposed to be a man now gone in search of some for us, but I cannot help thinking he is staying at home. Every Icelandic (as distinguished from Danish) house has attached to it a building for drying fish, and hanging at the door of each is generally to be seen a bundle of roughly prepared skins of Gulls, mostly Kittiwakes; but I found in one lot a young and old Iceland or Glaucous Gull, I could not make out which, as I had no means of ascertaining the size. I have done nothing yet about getting ponies, in fact there is not much use in doing so until one wants to go somewhere, as there would only be the trouble of having to look after them in the town, and fodder is not only dear but hardly to be got. Henderson, one of the Scotchmen I before mentioned, has bought about 18, however, which he takes back with him; they are all in the most miserable condition, but with hair so long they look like bears.

Kirkjuvogr, near Cape Reykjanes,
S.W. of Iceland,

May 28, 1858.

Here we are at one of the nearest places to the Great Auk Islands, and here we have been for a week.

We left Reykjavik on the 19th, having stayed there all the time from our arrival, the spring being so backward that it was said to be impossible to get grass for the horses, and thereby travelling was rendered very difficult. Of course, it was a great bore being weatherbound in the metropolis as it was not lively, and a very bad place ornithologically speaking. Besides this we were almost in a chronic state of intoxication from the unnecessary amount of hospitality we had to endure, but as it was all meant as civilly as possible one had nothing to do but abide it, and certainly no people could have put themselves in the way of doing all we wished (with this one exception) than everybody we met. I told you before of the readiness with which they allowed Mr. Eric Magnussen to start off for us to the Eastern Great A. rocks, and in due time the young man left us in very good heart, and I hope he has now arrived at the point on the coast opposite to it. What the result of his journey may be, we may not know for another six weeks. He was also commissioned to look after some Falcon's eggs, but we thought it best as he was not an ornithologist not to embarrass him with other subjects. Reykjavik, as I said before, is a very bad bird place, and very little, if anything, of any consequence breeds in the immediate neighbourhood, excepting perhaps Glaucous Gull, which is said to be on some of the islands in the Fjord, but these we could not find any trustworthy person to look for, and of course taken by any one else, they would be of no value, for there are quite enough Grt. Black backs about. The only birds I saw of them up to the present time have been young ones, and the same with Iceland Gulls. Several people in the place make a sort of trade in selling skins and we bought some at moderate prices, but nothing of any rarity. One fellow had a small immature Gull killed last winter, which we got from him. I am not sure whether it is *L. ridibundus* or not, but none of that group have been yet found in the country. We got also nearly a dozen falcons' skins, nearly all Icelanders but one or two Greenlanders. For a real white Greenlander

they charge as much as £1, so that we did not go deeply into them. Harlequins and Barrow's Ducks are moderate, but there is no great stock of them. I also got a few birds skinned by a good woman who does them very fairly well, and very reasonably. Young Glaucous, Adult Black-backed Gulls, White-fronted Goose, Great Northern Diver, etc., besides some Ptarmigan; these have not yet got much out of their winter plumage, though, by the way, I have not seen any fresh-killed the last week or ten days. Thus much of our stay at Reykjavik; we left it, as I said before, on the 19th with Geier Zoega (the man recommended by Bushby) as our guide, in company with the Land Physicus,—a sort of Government Doctor,—who was going his rounds to look after lepers. He is the man whom Ld. Dufferin calls the "cheeriest of Doctors," and very rightly so, as he is a real good fellow. We hired horses for this expedition, as grass is so scarce we could hardly expect to feed them here, and in addition to this the time of our stay here was, and is, so uncertain. We had some difficulty in accomplishing about 30 miles English the first day, owing to the badness of the ponies' condition and of the road; the Doctor, who is a very big man, had three of his own for his own riding and they all had a benefit of it. I rode one animal all the way except the last few miles. Wolley had two. We had besides in company the Doctor's guide (who was also Ld. Dufferin's and to whom we brought a whip from Ld. D.) and a Veterinary surgeon who is sent here to cure the scab, which is killing all the sheep; so that we had medical accommodation for man and beast. The Vet., by the way, got a very nasty fall, the ground giving under his pony, who came on the top of him.

The greater part of the way lay over streams of lava, all the productions of some one or other of the half-dozen or so respectable-looking volcanoes whose cones break the horizon to the eastward of us. These lava streams vary very much in their character; some are tolerably smooth, or look like dried coal-tar that has run out;

but others are peaked and jagged in the most fantastic way you can imagine ; anyhow, each stream seemed as we came to it to be worse to pass than the last. The road sometimes goes over the stuff, at others winding in and out, up and down, in fissures and faults of it, where generally is collected a foot or two of soft dry sand, which does not render it a less " hard road to travel." A good deal of the lava is grown over with mosses, of which there seems to be a great number of species ; one of the commonest I never saw before, it is very soft and long, dark green, but with a thick white down which gives it the appearance of wool, and this covering so much of the ground and rocks, when contrasted with the dark lava on which it grows, makes the whole scene look more like a good photograph with its lights and shadows well brought out than anything else ; certainly a photograph would be the only thing to give an idea of the look of one of these places. Occasionally a little heather or cranberry, and even birch (six inches high, not more) grows amongst this desolation, and there may be heard and seen the Redwing, singing " tut-tut-tut-tut " just as he does in Lapland, but here being nearly the only song bird it does not sound so monotonous. One sees, too, a good many Snow Buntings, and they have a pretty song. In fact, these with Raven, White Wagtail, Wheatear and Titlark are the only passerine birds in Iceland. Ravens are tamer even than the ones at home and far more impudent.

Further on on our march we came to a waterless district, which did not improve the going of the horses (good water is scarce all over the country, even here it is much too salt to drink for pleasure ; perhaps it is why the Icelanders prefer stronger liquors), but we finally arrived at Keblavik, where we passed the night at a very respectable place, and stopped there the next day, the Doctor having to visit some of his leprous patients, and we not being in any hurry waited for him. At dinner we had Turnstones and Purple Sandpipers, as we found afterwards by asking to see their heads.

On the 21st we set out and came on here, but by a long round as we wished to see a priest who lives close to Skagen, and some other people who were supposed to know about Great Auk. They were duly examined and their depositions taken. On our way we saw a great many Turnstones, a few Dunlins and Sanderlings (of the latter I shot a ♀, the ovary backward, and in a very moderate state of plumage) and some Red-necked Phalaropes. We passed some ponds whereon Faber says he found Grey Phalarope breeding, though he did not get their eggs. We got two fellows to dig at a rubbish heap, where an old man said he remembered seeing Great Auks' bones, but we found nothing but fishes' remains. We finally arrived here late in the evening and saw a beautiful sight on the shore ; three Iceland Gulls, young, of course, sitting on the water close to the landing-place, as tame as possible ; as many Red-necked Phalaropes swimming about in a little bay of their own, hardly larger than a hip-bath ; Purple Sandpipers creeping about on the rocks like rats, and a vast number of Turnstones ; some of these, too, were running about among the houses on the short warren-like turf with Golden Plover, just as you see Blackbirds and Thrushes on a lawn in England. Since we have been here we have done but little in the bird way. We have not yet had a sufficiently calm day to admit of our going to sea, though one morning we were on the point of starting when our leader, who has been the foreman of most of the later expeditions to the rocks, decided, and wisely as it turned out, that it would not do. Our arrangements are completed ; we are to have two 10-oar boats for greater security, and 16 men in each, so that some may rest ; thus with ourselves and Zoega there will be 35 souls embarked on the enterprise. With these precautions, I think the risk is reduced to a minimum. The information which Wolley has acquired amounts to about this. In old times the true Geirfuglasker was the place visited, and no one thought of going to the Meal Sack (Eldey) until a boat was seen to land there from a " yacht " (*i.e.* cutter), and then an enter-

prising fellow went there and took 8 Great Auks out of a considerable number, the greater part of which escaped as the men did not know the dodge of catching them, which after all amounts only to going very quietly. Shortly after this, in the spring of 1830, a submarine eruption took place, and the true Geirfuglasker sank (whether any part of it is still above the surface is doubtful). Since then the Meal Sack has only been visited and with varying success; one year (probably 1831) 24 were taken there and their skins sold to merchants at Keblavik. In 1846, our present landlord and leader went to the Meal Sack and took two birds; one egg—if not two—was seen but was accidentally broken, and we cannot make out that the bird has since been seen by any one. The rock has been since visited at least twice, one year in August, which was, of course, far too late to find the bird, and last year people went but were unable to land; the leader of that expedition is extremely anxious to go again this year, though he declares he saw nothing last time. It seems pretty certain that the bird is very irregular in its visits, sometimes keeping away for several years in succession, so that there is still just a hope. When Faber was here some thirty years ago, he cruised for three days off the old Geirfuglasker; they were unable to land, but he says he could see every bird on the rock and there was not a Gare-fowl among them; now it is clear that long after his time there were several successful captures made there, and it has happened in the same way at the Meal Sack. It is very singular that we cannot make out that more than half a dozen, if so many, eggs have been taken here within the last thirty years. The merchants, though they have given large sums for the birds, have never cared much for the eggs, and it is a mystery to us where all the eggs have come from that are in collections, unless indeed they have been from the Eastern islet to which Mr. Magnussen has gone, and where they may have been obtained by French fishing vessels, of whom there are a great number on that coast. All accounts agree in saying that on land

the bird is blind and only gets its sight when it is in the water, but it has capital ears. Of course, there is some mistake here. In the water it swims deep with its head cocked up, and does not keep dipping its bill as Razor-bills and Guillemots do. Some old fellows say that there are always as many eggs found as birds, which can only be accounted for by the supposition that the cocks and hens relieve each other. It is therefore a point of considerable importance whether two eggs or one were found in 1846, and we have been unable to get satisfactory evidence respecting it. If as one man says there were two, there must have been other birds out fishing at the time the boat landed, and then there is a strong presumption that the bird was not exterminated in that year. Wolley is much more sanguine about success than I am, and I think more than he has a right to be ; but at the same time I am not more desponding than I have always been about it.

June 2.

The steamer passed Reykjanes the afternoon before last. I am in hopes that I may get letters to-day ; but people have such odd notions of the necessity of doing anything at once in this country that I have my doubts. I forgot to say that on the 24th largeish flocks of Knots arrived, which were increased on the following day. They were very wild and it was only after several trials that we shot one, which proved to be a male and well advanced in plumage. Yesterday they had diminished in numbers, and to-day I have not seen one. By far the greater part of the Turnstones and Purple Sandpipers too have gone ; so also Dunlin and Golden Plover, and I have not seen a Sanderling now for nearly a week. I suspect Grey Phalarope breeds hereabouts occasionally ; a man says he found a " Randbrustling " nest on an islet here once, and this name though properly applicable to the Knot, is also used for the other Redbreast, and this man spoke of its swimming in the water like " Odin's Hani " (Red-necked Phl.). We have again tried digging for Great Auks' bones, but without success. We are endeavouring

to get some live White-winged Gulls for the Zoological, but the brutes are very wary, and do not seem inclined to take either a baited hook or to get into a snare.

On Sunday (the 30th) I saw a fine Buffon's Skua here, and yesterday evening a man sent us one from Keblavik that he had shot. I have tried several times in vain to find Snow Buntings' nests; they are now building, but they do not seem to have a good heart in the matter, for often after picking up a nice bit of wool or a feather they let it drop again before long. I succeeded some days ago in watching a White Wagtail to its nest, but there are no eggs yet. The only eggs I have seen, are one nest of Lesser Black-backed Gull and three Golden Plovers' which have been brought in. The weather still looks far from being settled, and it seems as if we might be here at least another fortnight. What our future plans may be I cannot say at all. Of course, the great object is to reach Great Auk, but unless we soon get the attempt made it will be of no use going northward, and then we must devote ourselves to Grey Phalarope in this corner of the island. We have sent to the westward to Oddi, for Gooses' eggs, as Faber says *Anser albifrons* is there only.

I shall certainly try and get home by the middle of August, though I think Wolley will very likely stay longer.

Elveden, August 16, 1858.

The result, then, in short was nothing. Not one day of the whole two months we were at Kirkjuvogr was the sea ever sufficiently calm to have allowed us to land, even had we gone out, and we have come back knowing no more than when we started whether the Great Auk is living or dead.

CHAPTER IV

THE GREAT AUK.

THE journey to Iceland, though it resulted in no definite knowledge as to the continued existence of the Gare-fowl, so far from discouraging Newton proved to be the beginning of a prolonged investigation of the natural history, distribution, and remains of that most remarkable bird. The many days that they spent in enforced idleness in Iceland were occupied by Newton and Wolley in examining a score or more of witnesses, fishermen and sailors, who had visited the breeding-places of the Gare-fowl and had been present on the occasions when the birds had been killed or captured. The result of their investigations was published * by Newton after Wolley's death. An interesting point, and one to be greatly deplored, which they discovered in the course of their inquiry, was that the extermination of the bird had been greatly hastened by the action of the European museums in offering large sums for their skins and eggs. Discussing the probable fate of the bird, Newton wrote † :—

As to the extinction of the Great Auk, if it is extinct, I think it has been mainly accomplished by human means. The first decided blow, from which probably the race never rallied, must have been that delivered by the crew of a strange vessel who about 45 years ago, while lying becalmed off Cape Reykjanes, landed on the Geirfuglaskér and committed an enormous slaughter.

* "Abstract of Mr. J. Wolley's Researches in Iceland respecting the Gare-fowl or Great Auk (*Alca impennis*, Linn.)," *Ibis*, October, 1861.

† Letter to T. Southwell, Esq., August 30, 1858. Elveden.

They loaded their boat with birds, among which Gare-fowls were in no inconsiderable number, leaving yet as many more on the island which they had killed but could find no room for. I saw a man who was present on this occasion. Some 18 years later the Geirfuglaskér sank beneath the waves in a volcanic disturbance of the sea's bottom, and about that time a few birds, the descendants probably of those who had survived the great massacre, were found on an island lying nearer the mainland, but still only to be reached with difficulty. Under the influence of the "Almighty Dollar" (though in Iceland it is not worth 4/2) these poor birds were persecuted, their eggs plundered and their necks broken to supply the demand which Museums were then creating. And so the number dwindled, until in 1844, the only two then to be seen were taken, their egg broken (the shell left on the rock) and their skins shipped to Europe.

I do not think there is any good evidence of the bird being seen since that time; but I confess I do not give it quite up, nor shall I for the next five or six years, though the places suitable for its breeding station must be very few in number. The coast of Iceland is well known, and as Iceland is the most northern limit of the bird's range, it is useless trying further towards the Pole. The east coast of Greenland is encumbered by ice, and Labrador is nearly as well known as Iceland.

Wolley died in the year following their return to England, and Newton never found an opportunity of repeating his visit to Iceland, but from that time he began to collect every scrap of information * relating to the Gare-fowl and to prepare a complete list † of all the existing remains of the bird—eggs, skins, and bones. On his journeys about England and the Continent he visited every public and private collection which possessed a

* "The Gare-fowl and its Historians," *Natural History Review*, October, 1865.

† "On Existing Remains of the Gare-fowl (*Alca impennis*)," *The Ibis*, April, 1870.

Gare-fowl and made careful notes of its history. In John Wolley's collection of eggs, which was bequeathed to him, were two eggs of the Gare-fowl: these formed the nucleus of his own famous collection of seven eggs, which are now in the University Museum at Cambridge. It is hardly necessary to say that the eggs were sold in those days far below the enormous prices they fetch nowadays, but there was a good deal more of romance about it then than there is now in bidding at auction for an egg, every point in whose history for the last fifty years is known. Mr. Gould bought an egg at a toyshop in Regent Street for ten pounds, and, thinking it to be a coloured model, sold it again a few days later. Mr. Yarrell bought an egg in Paris for two francs!

The story of Newton's first purchase is graphically told in a letter to Canon Tristram:—

I dread the consequences of some news I have to impart, especially as regards Salvin and the Godmans: However, it is a punishment on them for their base desertion of me, and a reward to me for my patience under adversity. In going about London this very wet day I have picked up the greatest prize an English Oologist can meet with. I stumbled on the scent of it in the subterranean regions of Bloomsbury, and after a brilliant burst in a hansom ran it to ground under the shadow of St. Mary-le-Strand, a locality already sacred to the gentle memories of poor old Salmon and his great egg. The long and short is I have to-day purchased a Great Auk's egg, one whose existence was previously unknown to me. I felt bound to rescue this Andromeda from being chained in the sunshine of Gardner's window, but I must confess she is not remarkable for her good looks, though I have seen worse, and I am glad to say her antecedents are likely to prove extremely interesting.

I expect to hear of Salvin and Percy Godman embracing and then leaping off the top of Snoehaetten, and of Fred's drowning himself in the Lake of Lucerne through

envy. Poor fellows ; but what could one do ? Is a Great Auk's egg to be suffered to be pilloried in Oxford Street exposed to the contemptuous gaze of the cads of Holborn ? Ho ! St. Geirfowl to the rescue !

Of the price no man knoweth save — and myself ; all I can say is that sentimental oologising is expensive, and may that consideration comfort my absent brothers of the B.O.U.*

The antecedents of that egg were, as Newton supposed, extremely interesting and not altogether reputable. When he first saw it, the egg bore a paper label, and the owner, Mr. Calvert, showed Newton a number of other eggs bearing similar labels, which he said he had bought recently at the sale of the Natural History part of the Museum of the United Service Institution. But the Great Auk's egg, though he thought it came from the same collection, he said he had bought from some one else a fortnight before.

I told him that I had learned from Mr. Leadbeater that there was no such thing in the collection, but he replied that the sale was so badly managed that whole boxes, full of odds and ends, were sold without examination, and this agreed also with Mr. Leadbeater's account. It ended in my coming to terms with Mr. Calvert ; I was to have the egg conditionally on his informing me whence he obtained it, and he was to keep it for me till my return from the Continent, whither I was intending to proceed that night—I paying a deposit upon it. On September 4 I called by appointment to redeem the egg, and upon my paying the price agreed upon, it was handed over to me by Mr. Calvert, who informed me that he had it from one Westall, of Porchester or Portland Terrace, Bayswater—he could not recollect which. I complained that this was not according to our agreement, for that he had promised to give me the person's address. I lost no time, however, in writing to each of the places

* Letter to H. B. Tristram, August 18, 1860.

he had named, but received no reply. Subsequently I wrote to Captain Burgess, the Secretary of the United Service Institution, to obtain the address of Captain Vidal, whose name was on the label attached to the egg, to whom I also applied; but that officer having taken up his abode in Canada, it was not till the following summer that I received any reply. When it did come, it was dated Moon River, Canada West, June 12, 1861, and was to the effect that he had never given a Great Auk's egg to the United Service Museum.

Later in the same year, November 7, 1861, the Council of the Linnæan Society accepted the bequest of Mr. Salmon's collection of eggs, which they had declined some time previously on account of certain conditions attached to its acceptance.

Soon after it was found that no Great Auk's egg was contained in it, and in its place was a Swan's rudely spotted and blotched with ink. The conclusion then was not difficult to draw. It is obvious, however, that with the view of putting a purchaser on the wrong scent, a label had been removed from some egg out of the United Service Museum and affixed to the present specimen. Whether the substitution was effected with the knowledge or connivance of the executor, there is no evidence to show, nor can I say whether he may not have had a perfect right to part with this or any other specimen before handing over the collection to the Linnæan Society. He certainly attempted to make a bargain with the Society for it, and I suppose felt justified in doing so. Mr. Calvert became possessed of Mr. Salmon's Egg-Catalogue, which he subsequently sold to Mr. Edward Bidwell, when it was found that the leaf containing the specimen of the Great Auk had been removed! The mutilated volume was transferred by Mr. Bidwell to the Linnæan Society in 1891.*

The doubtful origin of the egg and the questionable

* "*Ootheca Wolleyana*," pp. 373-374.

honesty of one of its late owners was a subject of trouble to Newton, as is seen from an interesting footnote attached to the description of the egg in the "*Ootheca Wolleyana*," p. 376 :—

It would be absurd of me to ignore the fact that persons there are, even among my friends, who have been inclined to think that I was guilty of some sharp practice in possessing myself of this egg. I trust that the plain statement of facts fully given above will remove any misconception on that score. Both before and since the transaction, eggs of the Gare-fowl have turned up in a manner the most unexpected. While I was engaged with Mr. Calvert, Mr. Moore, of the Liverpool Museum, entered the shop and told me that only a short time before he had discovered a beautiful egg of *Alca impennis* in the Derby Collection which he, though he had been Curator of it for more than ten years, had never before seen. In or about the very same year two were found by Dr. Lepierre in the Museum at Lausanne, where they had lain, since 1846 at least, unsuspected; and in 1861 I myself found in the Museum of the Royal College of Surgeons no fewer than ten, which must have been there for fifty years or more without their existence having been recognised. There is therefore nothing at all extraordinary in the supposition that one might have been overlooked in the Museum of the United Service Institution, and it was only the facts that the alleged donor's name was affixed to it, and that he many months after denied having ever made such a gift, which proved the story to be untrue, while subsequently the disappearance of Mr. Salmon's specimen from his cabinet indicated the source whence the present specimen was derived.

Rather more than a year later Newton made the greatest discovery of Great Auks' eggs that ever fell to the lot of a naturalist.

Only fancy a discovery I made the other day; it quite took away my breath! Going to Surgeons' Hall

to inspect Owen's dissection of a Great Bustard, I found Huxley there, who asked me what I wanted. He told me I should most likely find it in such and such a place. Ascending to the topmost gallery of the innermost room, a glass case with birds' eggs met my eye. After looking at one or two grimy Ostrich's and deformed Turkey's which might have belonged to John Hunter, I saw, as I thought, a nice model of a Great Auk, next to it was a prickly hen's, and then, on, on, on, as far as the eye could reach, Great Auk's!! To cut it short, there were *ten*, nearly all in excellent preservation, though one or two are a little broken. Of course, I hardly obtained credence from my friends; but next day I took Tristram and Sclater and Simpson, and we all four had the case opened and handled the eggs which are neatly sealing-waxed on to boards.

As soon as my first emotions by the way were over I called out over the railing to Huxley and told him what I had discovered; whereupon to the astonishment of some grave-looking medical students in spectacles, he answered back that I was like Saul who went out to seek his father's asses and found a Kingdom; to which I could only respond that I hoped I should, like my illustrious prototype, succeed in gaining possession of my discovery. How they came there I don't know, but expect to make out; no doubt they are Iceland. I always was sure of more being in England than I could trace.*

Not one of those ten eggs did find its way into Newton's hands, but his collection, now belonging to the University of Cambridge, ultimately contained seven eggs of the Great Auk, the largest number in any collection. Two had belonged to John Wolley, one was the specimen obtained from Mr. Calvert, and four were presented to Newton by Lord Lilford in 1888. These latter four eggs had been sold in Edinburgh only eight years previously for the ridiculously small price of

* Letter to Edward Newton, Christmas Day, 1861.

thirty-two shillings. The history and antecedents of all the specimens were minutely investigated, and a mass of correspondence, which he preserved, with people in many countries testifies to Newton's untiring industry in this respect. Many of his correspondents were inaccurate, and some even drew on their imagination to give him information which they thought might appear to be true, but he was expert in sifting the grain from the chaff, and never recorded any fact of the accuracy of which he had the smallest doubt.

It is very curious how men readily accept as evidence of history, what is not evidence at all. Not many days since I had a remarkable instance of this. I wanted to find out what had become of the Gare-fowl's egg that Wilmot had in his collection, and at his death left to a friend of his, Mr. George L. Russell, himself now dead. I made inquiries through a friend, and in time got a letter telling me all I wanted to know and a great deal that I did not know; *e.g.* that the egg was taken by Wolley on an island near Archangel (!!). Fortunately for the cause of historical accuracy I have Wilmot's own testimony that he bought his specimen for £5 in 1846, of Leadbeater, and there can be little doubt of its being one of those that were got on Eldey.*

The history of Mr. Yarrell's egg, which went to Mr. F. Bond and subsequently into the collection of Baron D'Hamonville, was investigated by Mr. Harting. Yarrell had bought the egg as a Duck's egg from a fisherwoman at Boulogne or Paris, and her story was that she had received it from her husband, who had been a seaman on board a whaler, implying that it might have been brought from the Arctic regions. This Newton considered most improbable.

* Letter to Col. H. W. Feilden, December 1, 1884.

Magdalene College, Cambridge,
March 17, 1894.

MY DEAR HARTING,

My letter to D'Hamonville, which he quoted in the *Bulletin*, was written to correct the statement he had made in the *Mémoires* of the French Zool. Soc., 1888 (p. 225), and the point of it was to show that Yarrell had bought his egg of *Alca impennis* in France, but whether at Boulogne or in Paris did not, for the purpose I had in view, signify—so I merely expressed my belief without turning up the evidence. It was only the other day when the “whaler” made a public appearance that the place where it was bought became a consideration of any importance. Then I looked into the matter with the result that you know. I have not much doubt that old Bond, to the end of his days, honestly believed that the Great Auk inhabited the “Arctic Regions”; but then he never cared to inform himself very accurately on points of this kind, and would not recognise the improbability (I might say the impossibility) of a “whaler” bringing home one of its eggs—or even a dozen of them.

If I were to correct or refute all the incorrect stories about this bird, which are published from time to time, I should have enough to do. Even when they concern myself I am generally content to leave them alone, just as I left alone an astounding statement in the *Field* of December 17, 1887, about my discovery of the ten eggs in the College of Surgeons Museum, or one in the *Standard* of February 23, 1894, about the destruction of Scales's egg, which (except the fact that it was burnt) is an entire fabrication!

It is only on a point like this which one has been driving into people for more than 30 years that I feel called upon to interfere; but I see that the attempt is useless; though it does vex me, I confess, when those who ought to know, and really do know, better inconsiderately help to maintain the popular delusion. This delusion was for a long while (and possibly is now) shared by Mr. Champley of Scarborough, as I know that at one

time he was busy in inquiring of Arctic navigators and others who had been in the far north after *Alca impennis*, although the absurdity of such inquiry had been demonstrated for several years.

I wish there were the slightest chance of my being able to finish a Great Auk book before I die—but it is impossible. Nevertheless, I go on collecting all the materials I can, and somebody who comes after me may make use of them. I think that two-thirds of such a book would be taken up by refuting errors!

Yours very truly,

ALFRED NEWTON.

It was his purpose to write a book, to be called "The Story of the Gare-fowl," and after the publication of the "Ootheca Wolleyana" he hoped that he might have time to put it into order, but his life was not long enough for that. He had collected during the course of fifty years notes on every known specimen of the bird and of its eggs, and it may be hoped that some day this labour will be completed.

Every question connected with the bird was of absorbing interest to him, not the least being that of the origin of its flightlessness. He was never fully satisfied that the wings of the Great Auk were the degenerate remains of wings, which in remote ancestors had been useful for flight.

I can't *satisfy* myself as to the way in which the Gare-fowl's flightlessness was produced, and I suppose I never shall. I can only conjecture that he found wings fit for flight articles too expensive for him to indulge in. If he descended from a Razor-bill it is not difficult to imagine that he found big wings were not worth the trouble of growing and it was better to expend energy in simply accumulating bulk. But one has no more right to assume that he descended from a Razor-bill than that the Razor-bill descended from him. The most reasonable

conjecture seems to be that they had a common ancestor who differed in some degree from both, but still one would think that common ancestor must have had the power of flight. Such natural enemies as that common ancestor (or the Razor-bill for the matter of that) possessed may be roughly divided into 2 categories : enemies in the air or on land, and enemies in the water. Now in the water, wings to an Alcine bird are chiefly useful for steering (the propelling power being in the legs) and a very little bit of wing would do to steer with, and escape from a grampus or seal (?). In the air a wing must be very good to be good for anything, if not it is better not to fly at all (witness Wollaston's Madeiran *Coleoptera*). Natural selection would soon weed out animals with moderate wings and leave those that had the best or the worst. On land I take it the Gare-fowl had practically no enemies till man came to civilise him.

I don't say these views satisfy me, there may be considerations I have altogether overlooked, but I think they may serve as indications of something like the way it was done.*

During the last years of his life he spent a few weeks of almost every summer on board the yacht of his friend, Henry Evans, of Derby. Most of their cruises were in Scottish waters, and it was the keenest delight to him to visit the former breeding-places of the Great Auk.

May 13, 1898.

I am off on June 17th for another cruise in Henry Evans' yacht. I want to stop at the Holm of Papa Westray and see the slope on which the King and Queen of the Auks used to hold their court.†

And a few weeks later—

We had a most glorious day on the Holm of Papa

* Letter to Col. H. W. Feilden, July 27, 1885.

† The last Orcadian Great Auk was killed in 1812, and is now in the British Museum.

Westray, and I wished the whole time you had been there. The sloping slabs would admit of a whole regiment of Great Auks landing and marching up in extended line to a place where eggs could be laid in safety, and this at any stage of the tide or almost any conceivable weather—for the place is beautifully sheltered by the covering coast of Papa Westray.*

When, later, his increasing infirmity prevented him from venturing into the confined space of a small yacht, he often suggested to others that they should explore coasts and islands with a view to finding what might appear to have been possible haunts of the extinct bird. In the spring of 1907 Major Barrett-Hamilton † wished to visit the —— islands, as being a possible origin of the Great Auk remains found in Ireland, and as a matter of course he applied to Professor Newton for advice.

I am very glad you have seen and arranged with Ussher for a trip to those islets, also that for you it will not be so difficult a business. Now as to “minute instructions” for which you ask, beyond desiring you to run into no danger—and that is a positive order, not to be neglected on any account—I don’t know what there is to be said.

The question to ascertain is whether these rocks may have been (as Ussher suggests) a sufficient resort for the Gare-fowl, at any time of the year, but breeding season (the middle of May) especially, to make it worth while of the old kitchen midden people to have visited them and got thence the plunder of which Ussher has found the remains. Otherwise it is difficult to understand where their birds could have been got. From what we know elsewhere, Gare-fowls are stupid and easily taken on land, but hard to approach at sea, and granting that the men had bows and arrows, they would not get them very easily.

* Letter to J. A. Harvie-Brown, July 1, 1898.

† G. E. H. Barrett-Hamilton, M.A., of Trin. Coll., Camb., author of “British Mammals.” Died, South Georgia, 1914.

Then there is also this consideration ; do these rocks afford a place for a flightless bird to run up a slope, or even scramble over a not too high ascent to a place where she might lay her egg *out of the reach of the waves* ? On Eldey the available space must have been small, and not over big on the sunken Gare-fowl skerry, though I have no means of computing what the area was in either case. On Holm of Papa Westray, supposing that I was right in determining the place, there was room for scores, not to say hundreds, and on Funk Island for millions.

If your Irish locality could accommodate a score it would have been quite a creditable place, but I should think that unless it lodged as many the people would hardly have found it worth visiting for plunder. About all these matters you must use your own intelligence. You know how Razorbills and their like behave, and you must make allowance for a bigger sort bereft of flight.*

The extinct and disappearing faunas, especially of oceanic islands, had a peculiar attraction for him, and among other birds in which he took the greatest interest was the Dodo. By the fortunate circumstance of his brother Edward, himself an accomplished ornithologist, having been appointed Assistant Colonial Secretary of Mauritius in 1859, he had exceptional opportunities of acquiring specimens of the Dodo of Mauritius and the Solitaire of Rodriguez. In 1865 the British Association appointed him with Mr. Tristram and Dr. P. L. Selater to be a " Committee for the purpose of assisting Mr. E. Newton in his researches for the extinct Didine birds of the Mascareen Islands, and to report thereon at the next meeting of the Association ; and that the sum of £50 be placed at their disposal for the purpose." The results of these inquiries were published in several papers in the *Reports* of the British Association and *Proceedings* of the Zoological and Royal Societies. His

* Letter to G. E. H. Barrett-Hamilton, May 18, 1907.

article on the Dodo in the "Dictionary of Birds" may be cited as an illustration of the learning and the exhaustive criticism with which he could discuss a matter that strongly appealed to him.

During the next fifteen years Newton secured specimens of the remains of most of the extinct birds of the islands, including an almost complete skeleton of the Dodo, which is one of the most valued possessions of the Cambridge University Museum.

Many years later, when his friend Mr. Meade-Waldo was joining Lord Crawford on a cruise in the yacht *Valhalla*, Newton urged him to remember the Dodo and the other extinct birds of the Indian Ocean islands.

. . . There is not a single living thing in any one of the islands you are to visit that is not of the highest importance—of that you may be sure—and unfortunately few if any of the people who have been there before have understood what opportunities they had, and therefore have failed to appreciate them. From what you write I should think it very likely that on your way back you will call at Mauritius. In that case you might be doing a great service if you could prevail on the authorities of the Museum there to entrust to you the collection of Dodo's and other mostly extinct birds' bones which they lately bought of a M. Thirion, an enthusiastic barber, living in Port Louis, who has been for some years past digging them up for his own satisfaction—he having had the luck to find a place (I have never known clearly whether a cave or not) which has been very prolific. He made a great secret of the place and I don't blame him for that, but he sold all his "find" to the Museum, and there it is with no one, so far as I know, competent to describe it. Among the specimens are portions of the Dodo's skeleton, which were hitherto unknown, and it is most desirable that they should be described and figured properly—to say nothing of the remains of other extinct species, *Lophopsittacus*, *Aphanapteryx*, etc., of

which we have but fragments. . . . It would be a great thing if you could persuade the people there to let you bring them home to have them done—and certainly there is no other place where they could be done properly except Cambridge, because we have here by far the most complete skeleton of the Dodo, and almost without exception all the remains of the other birds, which were described by my late brother Edward and Gadow in the *Transactions* of the Zoological Society, and it would be a pity if these were described anywhere else.*

When his brother Edward was transferred to the post of Lieutenant-Governor of Jamaica, Newton was enabled to make a valuable collection of the birds of that and other West Indian islands. It was mainly due to Newton also that the "Sandwich Islands Committee" of the British Association was formed and the fast vanishing fauna of that region studied.

As an East Anglian Newton was naturally greatly interested in another extinct (so far as Britain is concerned) bird, the Great Bustard, or as he liked to call it, the Norfolk Bustard, which had vanished from this country during his own lifetime. Though there were still a few birds lingering in Norfolk in the "thirties," particularly in the neighbourhood of his father's estate of Elveden, it is doubtful if Newton ever saw a native Bustard alive. He made an attempt to see a bird between Cambridge and Ely in 1856, but was too late.

Last week I was at Cambridge, and there heard a report that a Bustard had been seen in the neighbourhood. I accordingly went to Burwell Fen, in company with my brother and a gentleman interested in Ornithology, and on searching a field of coleseed we found several feathers which were most undoubtedly those of the Great Bustard. The gentleman who accompanied us had been there a few days before and had not only

* Letter to E. G. B. Meade-Waldo, October 29, 1905.

then found more feathers but had seen a good many foot-prints which could only have been those of that bird.

I saw several men at work in the fen, and gathered from them that they had several times seen a "Wild Turkey" (as they called it): according to one man's account, it had been there from shortly after Christmas until the last few days, but another man who said he thought he had seen it before any one else, was of opinion that the time it had haunted the fen was not more than three weeks. However, in the main points they all agreed, and leave one to entertain no doubt but that for some weeks a Great Bustard had frequented that locality. They were very accurate in their description of the bird; one man compared the markings on the back and wings to a viper, saying that "it was dappled like a snake"; another said it "made a wonderful roarin' with its wings" when it flew over.

I was there on Thursday, the 6th inst., and on the preceding Saturday it had been shot at by a gunner, but only with a common hand-gun, and as the bird was more than 100 yards off, it doubtless escaped unhurt. I was unable to make out satisfactorily whether it had been seen since that day, but I am inclined to think that it took the gunner's hint and departed. Since then I have heard nothing new, though my brother who has been at Cambridge until within the last day or two, has made unceasing inquiries. I therefore sincerely hope that it has altogether escaped and that it will not in consequence help to fill the blood-stained pages of the *Natural History Magazines*.*

Twenty years later, in the company of Mr. J. E. Harting and others, he had the good fortune to see a Bustard alive in England. Mr. Harting writes:—

A brief mention should be made of the pleasure we both experienced in seeing a real wild Bustard in a Norfolk fen. In Feb. 1876, Mr. H. M. Upcher, of

* Letter to T. Southwell, March 14, 1856.

Sheringham, unexpectedly found one (a male bird) on his property in Blackdyke Fen, Hockwold, and by means of letters to neighbouring landowners, and the dissemination of printed notices, made strenuous efforts to prevent its being shot. Steps to provide it with a mate were taken by the late Lord Lilford. In company with Mr. Upcher and a few privileged friends we had the satisfaction of watching the movements of the illustrious visitor and seeing the hen bird turned out in the same field of coleseed with it; but the weather being very inclement at the time, the hen bird was accidentally drowned in a fen dyke, and the male after a stay of seven weeks disappeared.

During more than fifty years, up to the time of his death, Newton collected details of the history of the Great Bustard, more especially with reference to its extinction. He amassed an immense amount of information which was to take form, some day, in a book to be called "The Bustard in Britain," but he was never satisfied with the completeness of his material, and the book still awaits an editor.

Attempts have been made, from time to time, to reintroduce the Great Bustard into Great Britain, but none of them have been successful. Amongst those who made the experiment was Prince Dhuleep Singh, the owner of Elveden Hall.

Bloxworth, August 31, 1874.

MY DEAR LILFORD,

I have little doubt that if you were the owner of Elden you would be successful in introducing the Bustard, while I don't believe that Dhuleep Singh ever will be.

As regards the migration of Bustards formerly in England I have always been in doubt. Neither in Norfolk nor Suffolk did they ever seem to have appeared in their usual abundance in the shooting season. I think I stated this in the notes with which I furnished

Stevenson, but I have not got his 2nd volume with me here. Indeed, to the best of my recollection, I could never hear of but one *well-established* instance of a Bustard being seen between harvest time and the beginning of the New Year. This was a young bird shot by the late Sir Alexander Grant (an old friend of my father's) at Elden in September.

What became of the birds in the meantime I have no idea, but early in January, quite regardless of snow or frost, they used to be seen on the brecks and so remained till the corn (rye) hid them in the summer.

The question of polygamy is also a dark point in their history.

As to the southern distribution of the species, I never saw an African specimen, and I have sometimes been inclined to doubt whether the big Bustard of Algeria, etc., might not be *Otis arabs*, which you know poor Drake got in Morocco (*Ibis*, 1867, p. 424).

Yours in haste,

ALFRED NEWTON.

When Mr. Harting was preparing his edition of "White's Selborne" (published in 1875), he included in it Gilbert White's allusions to the Bustard, hitherto unpublished, and sent the proofs to Newton for his comments.

Bloxworth, Blandford,
August 22, 1874.

MY DEAR HARTING,

You will see by the "proof" which I now return of the notes for your edition of "White's Selborne" that I have read it pretty attentively, and have not hesitated to suggest several changes in it of more or less importance.

Those of the greatest consequence are such as relate to Black Game and Bustard.

It has always puzzled me to account for White's having said that the former had become extinct since his boyhood. The species has existed I imagine *always*

in the wild heathery tract which extends, with even now but few interruptions, from beyond the parish in which I write to Surrey—the tract which you will see laid down on any geological map as the “Bagshot Sand.” Supposing that the species did for a time become extinct in any one portion of this district it would speedily find its way to its old haunts, so well suited to it, from the remainder.

You may certainly have some authority for saying that it was “introduced” to Wolmer Forest—but without direct evidence to that effect I should rather attribute its reappearance (supposing White to be right in saying that it had disappeared) to natural causes. But even when White wrote Letter VI.—which I think we may put at or near 1789, the date of publication—for I imagine that the first few letters were an after-thought, and expressly written by way of introduction to the published work, while the later ones were no doubt real letters)—a Grey Hen had been seen two years before only—and then there is the celebrated “Hybrid Pheasant” sent to him by Lord Stawell from Alice Holt, *subsequently* to 1789, whose existence required that of a Black Grouse of one sex or the other. Thus I am inclined to doubt White’s statement as to its extinction in 1789.

As regards Bustards—the birds which from time to time appear in England are unquestionably of foreign extraction. Nothing in the world can be clearer than the extinction of the British race. Norfolk was their last stronghold, but in the south of England they were gone long before.

These remarks are simply to explain the alterations I have suggested on your “proof.”

I believe there is no good authority for the use of the word “nest” as a *verb*, and hence I have altered it.

In any natural history work I should always recommend the printing of the English names of species *with a capital letter*. They are in such cases to all intents and purposes proper names, and should be so distinguished, but I have not marked them on the “proof” for altera-

tion. Printers to save themselves trouble decry the use of capitals, but within limits it is very desirable.

Yrs. very truly,

ALFRED NEWTON.

Although the re-introduction of the Capercaillie into Scotland had been so successful, Newton never quite approved of these experiments, which he regarded rather as attempts at acclimatisation, and of that he wrote :—

Everything relating to what is called Acclimatisation is hateful to me, but I do think it is just possible that if *Strix uralensis* were introduced into this country, it might be of some use to check the Rat plague, and as Rats themselves are interlopers it might be fair to use aliens against them.

In the light of the Little Owl plague at the present time, it is fortunate that that experiment also failed.

All questions of the extinction of animals concerned him very closely (*vide* the article “ Extermination ” in the “ Dictionary of Birds ”), and in an address delivered to the British Association at Glasgow in 1876, he described in his own peculiar way the consequences of unconsidered acclimatisation.

What if a future “ Challenger ” shall report of some island, now known to possess a rich and varied animal population, that its present fauna has disappeared ? That its only Mammals were feral Pigs, Goats, Rats and Rabbits—with an infusion of Ferrets, introduced by a zealous “ acclimatiser ” to check the super-abundance of the rodents last named, but contenting themselves with the colonists’ chickens ? That Sparrows and Starlings, brought from Europe, were its only Land-birds, that the former had propagated to such an extent that the cultivation of cereals had ceased to pay—the prohibition of bird-keeping boys by the local school board contributing to the same effect—and that the latter

(the Starlings) having put an end to the indigenous insectivorous birds by consuming their food, had turned their attentions to the settlers' orchards, so that a crop of fruit was only to be looked for about once in five years—when the great periodical cyclones had reduced the number of the depredators? that the Goats had destroyed one half of the original flora and the Rabbits the rest? that the Pigs devastated the potato gardens and yam-grounds? This is no fanciful picture. I pretend not to the gift of prophecy; that is a faculty alien to the scientific mind; but if we may reason from the known to the unknown, from what has been and from what is to what will be, I cannot entertain a doubt that these things are coming to pass; for I am sure there are places where what is very like them has already happened.

None of those who were present are likely to forget the occasion, one evening in Newton's rooms, when a young man interrupted an interesting talk about the fate of (it may have been) Moas with the rather large question: "Why *do* birds become extinct?" The Professor replied without hesitation, "Because people don't observe the Game Laws; see *Deuteronomy* xxii. 6." The conversation languished after that and we soon returned to our various colleges, where we looked up his reference and read—

If a bird's nest chance to be before thee in the way in any tree, or on the ground, whether they be young ones, or eggs, and the dam sitting upon the young, or upon the eggs, thou shalt not take the dam with the young.

But thou shalt in any wise let the dam go, and take the young to thee; that it may be well with thee, and that thou mayest prolong thy days.

CHAPTER V

THE IBIS

FOR some years it had been the custom for a number of naturalists, most of them members of the University of Cambridge, and all of them interested in the study of Ornithology, to meet together once a year or oftener, for the discussion of various topics and the exhibition of objects of interest. These "conferences," as they were called, were highly appreciated by those who attended them, and in the autumn of 1857 at the meeting which was held (as usual) in Newton's rooms at Cambridge, it was suggested that it would be advisable to establish a magazine devoted solely to Ornithology. In the following year a number of ornithologists met at the British Association meeting at Leeds, when they decided to meet again at Cambridge in November and discuss the question of the magazine. Accordingly a meeting was held in Newton's rooms at Magdalene on November 17, 1858, when the following resolutions were adopted :

1. That an Ornithologists' Union of twenty Members should be formed, with the principal object of establishing a new Journal entirely devoted to Birds.
2. That Lt.-Col. H. M. Drummond should be the President and A. Newton the Secretary of the Union, and that P. L. Sclater should edit the Journal.

No official record of the meeting was made, but it seems to be fairly certain that eleven people were present.

As an instance of my forgetfulness I could have taken oath that Gurney was present at the Conference at Cambridge in October, 1858, when we founded the *Ibis*—or *Avis* as was to have been its name. Now I find from looking at old letters that Gurney was not at the Conference of 1858, though he had intended to be there, but had to go to a funeral somewhere else. He had been, however, at a former Conference, that of 1857 I suppose. Those present in 1858 so far as I can make out were yourself, Drummond, P. L. Slater, and E. C. Taylor whom he brought down, the Godmans, Salvin, Sealy, Simpson, and A. and E. N.—eleven in all. I think any letters of that period are worth keeping, for no doubt the institution of the *Ibis* had a very remarkable effect on Ornithology all the world over. Alas that the poor old bird should nowadays fly so feebly, and yet I quite believe that its youth might be renewed, if proper steps were taken.*

Newton was very definite in declaring that not all of these were the founders of the Union.

Don't forget that E. N. [Edward Newton] was emphatically one of the *founders* of the B.O.U., which is a good deal more than being only one of the original 20. I have always looked on the founders as :—

Drummond.

Tristram.

Newtons (2).

Salvin.

Godmans (2).

The rest—Slater, Gurney, and Wolley included—were *asked* to join us.

The Editor and the Secretary lost no time in making arrangements for the new magazine, and Messrs. Taylor and Francis agreed to print it. The head of the latter firm, Dr. William Francis, suggested the name *Ibis*,

* Letter to H. B. Tristram, January 2, 1888.



W. R. D. Donnelly
SIR EDWARD NEWTON, K.C.M.G.

and Joseph Wolf,* a friend of Newton, was commissioned to draw the figure of the Sacred Bird, which has always adorned the cover of the journal.

I owe you many apologies for not having written to you before, but I have been so very, very busy.

I hope things are promising for the *Ibis*; we nearly lost Wolley † through the change of name, but I trust he is appeased. His name is such a tower of strength that we could not set up to be Ornithologists of the first water without his co-operation. As for the name itself, I don't think it signifies £0-0-2, and "Ibis" is as good as any other; does it not signify "You will go," *i.e.* to the ends of the world, and in fact the Ibis is one of the most cosmopolitan of genera. I regard it in this light, and not in the way Wolley does, as a thing with a long bill, apt to be shut up in cellars for thousands of years, with no life about it at all. I look upon it too as the scourge of reptiles; the harbinger of that source of wealth and abundance, the overflowing of the river of knowledge; and therefore I recommend Ibirdiculture to all my friends, reminding them at the same time to say nothing against the sacred bird, for fear of the laws of the land of Egypt being put in force in this country: *vide*, Herodotus, *Euterpe*, chap. 65.‡

The first number of the *Ibis*, which was ready in January, 1859, contained an article by Newton and his brother Edward on the birds of St. Croix, West Indies, the results of their visit to the island in 1857. As the editor, P. L. Slater, was away during the early part of that year, and was shortly afterwards appointed to the arduous post of Secretary to the Zoological Society, Newton busied himself with the work of getting contributors to write articles for the new Journal. The

* "My friend Mr. Wolf, whose supreme excellence as a zoological artist was only equalled by his readiness to oblige any one who appreciated good work."—"Ootheca Wolleyana," Introduction, p. vi.

† J. W. wanted the magazine to be called "Avis."

‡ Letter to H. B. Tristram, December 10, 1858.

first number was received with a chorus of praise by contemporary journals, so Newton tried to induce others to write less favourable comments, lest the young society should become too much filled with satisfaction. Mr. A. C. Smith, who was not yet a member, was asked by Newton to write a letter to the *Zoologist* picking holes in, or pulling feathers out of, the *Ibis*, and in reply to his complaint that he had no fault to find with the magazine he received the following letter :—

But your objection that you do not know what to find fault with in the *Ibis* is indeed not valid. Nothing can be easier. It is printed 8vo size ; it ought to have been 4to to have allowed the plates to be larger, or 12mo, that it would have been easier to hold in the hand. It ought to be published monthly or bi-monthly, or half-yearly, or annually ; anything but quarterly. There is a want of unity about the design, or its contents display page after page a sameness which palls upon the reader. Its price is too high for the ornithological public, or it is too low to enable justice to be done to the plates. No publication of the sort was wanted at all, or that the void which every one felt existed has by no means been filled by the *Ibis*. Or, to go into particulars, that the Ornithology of Central America is far too dry, the birds of St. Croix too flippant. Mr. E. C. Taylor's paper on Egyptian Ornithology is only a *réchauffé* of what had already appeared in the *Zoologist*. (N.B.—Taylor says he sent his list of birds to Newman with remarks upon them, as afterwards printed in the *Ibis*, but Newman cut them all out, except one about the Egyptian Vulture's feet, and printed the bare list in the *Zoologist*.) Mr. Wolley devotes whole articles to the finding of a bird's nest as if no one had ever done such a thing before. Mr. Simpson is as bad. Messrs. Sturge and Evans thought because they went so far as Spitzbergen, therefore it was necessary that everybody else should be interested about them. Mr. Gurney's contributions are mere lists of what his collectors send him. Messrs. Salvin and Tristram

vary so in their accounts of the same things that one knows not which to believe ; or that they both agree so exactly that it must be the result of a previous determination to do so, and hence their testimony is valueless. The remarks on the Harlequin Duck are full of misprints, and that the author's notions of geography are exceedingly singular, when he speaks of "Europe with the exception of Iceland and Western Asia." That Mr. Hewitson's contribution has spoiled a good supplement to his work. That the Editorial articles are merely a display of knowledge, and that the review of Bree's book is ill-natured in the extreme, or that it does not detect half the faults in that very inaccurate publication. That the subject of British Ornithology is entirely passed over by the *Ibis*, or that British Ornithology should be left entirely to other magazines. That the scientific principles enunciated are merely the old ones always known, or they have a most startling and unpleasant novelty ; or that there are no scientific principles at all. That there is a horrible taint of heresy about the whole matter, or that the writers are far too orthodox for zoologists in these days.

Here is a string of objections, any one of which may be harped upon, or all at once according to the fancy of the player ; for a reviewer may be allowed to bring contradictory charges, as in certain actions contradictory pleas are used, first "not guilty" and then "justification." *

A question which greatly exercised the minds of the founders of the *Ibis* was that of a suitable motto for the Journal. Selater sought eagerly for one in the classics, but not finding one that was appropriate he composed a line :—

Ibimus incolumes tutique sub "ibide" sacra.

Newton writes : "I have suggested to him as being better :—

'I semel in terras, ibis sub nomine et Ibis
Sed quacunque ibis, floreat "Ibis" ibi.'"

* Letter to A. C. Smith, July 18, 1859.

Finally, it was decided that the motto for the first series of the *Ibis* should be :—

Ibimus indomiti venerantes Ibida sacram,
Ibimus incolumes qua prior Ibis adest.

This did not meet altogether with Newton's approval.

The *Ibis* motto as it now is I confess I do not understand, but it is not worth while bothering about, and I have never intimated my disapproval to Selater. I think I told you that Knox showed mine to the Bishop of Oxford (Stubbs), and he very much approved of it, though no doubt there was a solecism in the grammar.

Though he was not at any time a very frequent contributor of articles to the magazine, Newton did much work in reviewing books and in other ways greatly assisted Selater, whom he succeeded as editor of the second series of the *Ibis* (1865 to 1870). He was very keen on starting discussions, so in 1865 he got G. D. Rowley to write an article about the Cuckoo, or, as he always spelt it, Cuckow, and then asked A. C. Smith to write a letter of disagreement, thinking that "it will make people take a greater interest in the journal in which it appears." He did not want articles to be "scientific catalogues, but rather readable, written in a simply unaffected way." To a correspondent who complained that the *Ibis* went out of his depth he replied that he doubted it, "but if it does you must learn to swim—and the process is easy when you have made up your mind to it, for our Holy Fowl is a typical wader and its legs are not so very long after all."

His period of editorship was a time of strenuous work and of rapidly increasing responsibilities, so that he was unable to undertake the third series, which was edited by Osbert Salvin. Many years afterwards, writing to an old friend who lay dying, he recalled the early struggles of the *Ibis*.

February 26, 1906.

MY DEAR TRISTRAM,

If the letter I have just received is really to be the *last* I am to have from you, as therein foreshadowed, there could not be one more gratifying to my feelings, and I am at a loss for terms in which to answer it. I can never forget the steady, friendly, I may say, brotherly support I have invariably received from you, and if it were my good fortune to have done you a good turn in the matter of the Royal Society, a circumstance that had wholly passed from my mind, it was but a slight return for the aid you rendered in starting the B.O.U. and the *Ibis*, and again at the critical moment when our first Editor threw up the job, and (with one or two more) would not have been sorry had it come to an end. It was your Palestine papers that to a very great extent caused the success of the second series of the *Ibis*; not that I would overlook the value of the help I had from Blyth, Swinhoe, and others. Their articles were of great scientific interest, but they failed in the qualities for *reading*, while your articles possessed both merits.

There are few things I look back to with greater satisfaction than my six years' editorship of the *Ibis*, but that was entirely due to my contributors, among whom you were chief, and one on whom I could always rely.

I can't trust myself to write more, and indeed you might easily be tired with more. It must indeed have been a comfort to you to have had all your children round you on Saturday, and so I say farewell, and God be with you till you are with Him.

Yours as always,

ALFRED NEWTON.

Henry Baker Tristram, Canon of Durham, was a friend and frequent correspondent of Newton's for several years before the foundation of the B.O.U., of which he was an original member. That Newton had a very strong affection for him is shown by his action "in the

matter of the Royal Society," which is explained by the following letter, written ten days before his death.

The College, Durham,
February 25, 1906.

MY DEAR NEWTON,

It is utterly impossible to get out of your debt epistolary, as I have found ever since that unparalleled act of friendship many years ago, when you took off your name from the Royal Society in order to secure my election. When one looks back through the long vista of years there is nothing I have found to equal it for self-sacrifice and generosity. But, that apart, there is only one sense of generous fraternity. I am glad to deliver my soul.

In my present state of health the political outlook hardly interests me, for I am very ill. The doctor stays in the house with me generally all night, as I suffer from breathlessness, but I have had the comfort of having my family, eight children and my sons-in-law gathered round me yesterday.

Before my attack became worse I was able to enjoy two papers in the *Ibis* on Ross' Rosy Gull and the Scotch Antarctic, as well as to glance at my old friend Mr. Whitaker's *Tunisia*, which resuscitated many interests of bygone years. I dare say this may be my last letter.

Your sincere old friend,
H. B. TRISTRAM.

Tristram was distinguished as a traveller, a naturalist, and an antiquary. He devoted himself particularly to the ornithology of Northern Africa, about which he wrote several most interesting papers in the early numbers of the *Ibis*, and of Palestine, which he visited several times and described in published volumes. In those countries he made many ornithological discoveries, and his sudden and unexpected departures were a constant source of mystification to his friends, among whom he was known

as the "Sacred Ibis" or the "Great Gun of Durham." He was during all his life an indefatigable collector, and his birds and eggs, almost the largest collection ever amassed by one man, are now in the Liverpool and South Kensington Museums.

I saw a long letter from Tristram to Selater from Jerusalem, in which he says they have done wonders. If all he advances is true they must have got some twenty new species of birds.* Among other things he has found the descendants of the Ravens that fed Elijah, and they are previously undescribed except by the author of the Book of Kings. In future they are to stand as *Corvus Eliæ*, Tristram. I have only to hope that *Asinus balaami* and *Cetus jonæ* will also be found.†

After the end of his term of office as editor of the *Ibis* Newton no longer took an active part in managing the affairs of the B.O.U., but his interest in the Society never failed, though he disapproved of certain modern innovations, and his advice was constantly sought by successive editors of the Journal. There were times when it appeared that the editors had not very carefully read the articles they published, and these occasional lapses seldom escaped him :—

The *Ibis* for the past year has certainly been distinguished by some crackers. It was only yesterday I heard from Legge, who drew my attention to a curious statement at p. 143 :—

"On the top of trees in Celebes," says Meyer, "builds the Whimbrel."
Then De Meyer is a l—r : proclaim it with a timbrel !

It was unfortunate that he would never be persuaded to approve of the British Ornithologists' Club, which was

* One of the birds discovered on that journey was Tristram's Grackle (*Amydrus tristrami*), which he found in the rocky gorges of the Dead Sea.

† Letter to Edward Newton, March 25, 1864.

founded in the late "nineties." He was accustomed to call by a most uncomplimentary name those monthly meetings and dinners which have done so much to advance the study of ornithology and to promote good fellowship among its votaries.

One of the original "Ibises" and the first of them to die, in November, 1859, at the early age of thirty-six years, was Newton's friend, John Wolley. Shortly before his death he requested that his zoological collection, the formation of which had latterly been his chief occupation, should be handed over to Newton, and this wish was fully carried out by his father. The collections were sent, in February, 1860, from Beeston to Newton's home at Elveden.

There were twenty-four enormous packages, which weighed altogether one ton and filled a railway truck—not a single breakage! After consulting on the subject with P. L. Sclater, I came to the conclusion that I should be most advantageously serving the interest of Ornithology by publishing from Mr. Wolley's note-books a complete catalogue of the contents of his egg-cabinet. Mr. Wolley's life had been one of so active a nature, and his death was, until a few weeks before it took place, so entirely unexpected, that he had had but few opportunities of making known to the world the results of his labours. To prevent those results from being lost to science was my main object; and it appeared to me that this would be effectually attained by the publication of a Catalogue such as the present, which should embrace as far as possible all the information he had gathered, which is extracted from letters to his friends, from fragmentary diaries, or from detached memorandums, as well as that which was contained in his "Egg-book"—this latter being the principal record of his experience, and having been, with some few exceptions, most carefully kept for many years.

In order to make the catalogue more complete

Newton added descriptions of specimens he received subsequently and of the specimens in the collection belonging to his brother Edward and himself.

The First Part of the “Ootheca Wolleyana,” as the catalogue was called, was published early in 1864, and in his Preface Newton announced his intention of publishing the Second Part on the 1st of December of the same year. Circumstances, however, long delayed the preparation of the work, and it was not until 1902 that Part II. appeared, followed closely by Parts III. and IV. (the last) in 1905 and 1907. Though this long postponement was somewhat irritating to the expectant subscribers, the succeeding parts gained greatly in value by the delay, in that Newton was able to include eggs which had always baffled Wolley’s efforts. A great number of these additional specimens were obtained by Wolley’s collector Knoblock, whom Newton kept in his own pay for several years. Another circumstance which greatly added to the extent of the work was that, whereas Wolley’s collection was confined to European species, Newton decided to extend its limits to those of the western half of the Palæarctic Regions, as being a district more naturally defined :—

My foreign correspondence is growing awkwardly large, and yet I must increase it, for I am bent upon having every egg that is to be got before the publication of the “O.W.” and I am trying to make Greenland, Spain, India, and Russia disgorge their ovarian possessions.

In a “Retrospective Note” (November 20, 1906) Newton wrote :

Thankful as I am at being able to complete this work, my feeling is rather of regret than satisfaction, for, owing to the length of time which has elapsed since the first part of it appeared, so few of Mr. Wolley’s personal friends are left to see its conclusion, and this Catalogue

is largely a record of ancient friendships. My only consolation is that the protracted delay has not been my own fault, as I can honestly say that whenever the cessation of more important duties gave me opportunity, I resumed my labour of love, but again and again months—not to say years—passed without such opportunity recurring.*

The “*Ootheca Wolleyana*” has been well described as a monumental work, and that it was very truly a “labour of love” may be seen from the concluding paragraph of the “Memoir” in Part II.

To describe John Wolley’s character at any length has not been my intention. I have tried, without the desire of unduly exalting the value of any branch of Natural Science, to give in outline the chief events of a life which, if the study of God’s creatures deserves encouragement, cannot be said to have been uselessly spent, for it added not inconsiderably to our knowledge of them, and, if unswerving devotion to the cause of Truth merits any praise, must be admitted to have been honourably passed. The facts narrated here and in the following pages are left to speak for themselves: on them must Wolley’s reputation rest. It would add little to them to state that, in the various capacities of relative, friend, and companion, there was little wanting in him, for such encomiums are too often applied without due cause. His good qualities are treasured in the recollection of those who knew him—now, alas! dwindled to a small number—and especially of that one of them to whom he gave the last token of his esteem. Having endeavoured (how imperfectly no one knows better than myself) to discharge a duty owing to the memory of a deeply lamented comrade, I cannot conclude this sketch without an expression of gratitude at having been permitted to share so largely the intimacy and confidence of such an upright man.

* “*Ootheca Wolleyana*,” Preface.

CHAPTER VI

VISIT TO SPITZBERGEN

THOUGH the emoluments of the Drue Drury Fellowship were very meagre, Newton continued to do what was considered in those days a considerable amount of travelling. After he was elected to the Fellowship in 1855 he had visited, as we have seen, Lapland, the West Indies, Boston, and Iceland. In the autumn of 1859 he went, by way of Paris, where he saw the Jardin des Plantes, to Copenhagen, to see his brother Francis Rodes Newton.

This was merely a visit of pleasure, and he records in a letter to his brother Edward a hunting party of a kind which is now extinct.

One day we went over to Saroe to assist at a *chasse*. Frank was made to take a gun and killed his only *objet*, a roe-deer. There were 17 guns and about 50 beaters, the latter armed with clappers. They drove a large extent of forest, the guns being placed at "Stations," but the bag was limited: 5 Roedeer, 3 Hares, and 12 Foxes! It was worth seeing *once*. All the "hunters" got up extensively with game bags, *couteaux de chasse*, etc. If a man comes late he gets fined, and so also if he doesn't hold his gun up, misses a shot, shoots what is not game, etc. Everything is conducted according to rule, and people look as grave about it as if they were at a funeral. The head forester reads out the return after each drive, and at the end of the day announces the fines. A fat Swedish Count was very heavily mulcted for killing a Brown Owl.*

* Letter to Edward Newton, October 13, 1859.

Most of his journeys were short trips to cities on the Continent, where he visited the local museums and made the acquaintance of their curators. In 1860 he went to Holland and Belgium, and in the summer of 1861 to Germany :—

I have not much to record of my wanderings. The weather last week was insufferably hot, provoking one to all manner of maniacal acts, even beyond those of which the British tourist is usually guilty. I did nothing in the way of Ornithology until I arrived in its Vaterland, for so really Germany must be considered. I passed a pleasant afternoon with Blasius at Brunswick, whom I like much as a man, but I am not sure that the very high opinion of him as a naturalist I had formed from his writings is altogether carried out on further acquaintance. Perhaps, however, his judgment is too profound to get to the bottom of it in some few hours. I had a hearty welcome from Baldamus, at whose parsonage I passed a night, much pleased with his exceeding earnestness and simplicity. At Berlin, I found in Cabanis the German Sclater, skilled in the most abstruse mysteries of the science, to whom you and I, poor wretches, are but as mere proselytes of the gate, but a very agreeable fellow to meet, the vivacity of the Frenchman overpowering the Teutonic stolidity. Blasius did me the honours of the University collection at Brunswick, and also of his own private one, which is rich in N. Asiatic specimens. Baldamus' egg-cabinet is capital, nevertheless I can regard it without jealousy, though in numbers of species he must far excel me. Of the wealth of the Berlin Museum I need not speak, for it is well known. Berlin itself seems the most terribly sleepy place I have seen for a long time. It would puzzle the very fastest young man to find anything of a Spree, barring the river, and that is one of a most sluggish nature. But the buildings are beautiful. I arrived here last night, or rather early this morning, after a most tedious journey, and have spent the day in the picture gallery, for the first time in my life giving way

to feelings of Mariolatry, brought on by my introduction to the Madonna del Sisto, of which I could not write without raving.*

The following year (1862) was marked by a decision which affected profoundly his subsequent career. It had always been his intention—with how much enthusiasm we do not know—to take holy orders, and he was to have been ordained by the Bishop of Ely in Advent. On his return from a short visit to the West Indies in October and November, he decided to abandon the idea. It is probable, as Dr. Shipley says, that this decision “made for peace in the Established Church”; it is certain that the decision made for the progress and encouragement of Biology. It is equally certain that he did not himself regret it later.

Miss Strickland, perhaps, was not so very far wrong in supposing me to be a parson—for a good many years I looked forward to that being my lot, but I am never sufficiently thankful that it was not; though in the point of worldly goods I should probably have been a comparatively rich man. In these days of rising prices fixed incomes are a terrible institution.†

It was the custom, though it was not a strict condition, for the holder of the Drury Fellowship to take orders, so when Newton made this decision he at once offered to relinquish the Fellowship, but the Master of Magdalene ‡ allowed him to hold it until it expired on March 25, 1863. “This is the last day I shall ever be able to consider myself Fellow of Magdalene,§ my fellowship ceasing this Lady Day, and henceforth Norfolk Fellows are as clean gone as Norfolk Bustards.”

* Letter to H. B. Tristram. Dresden, August 22, 1861.

† Letter to Mrs. Strickland, November 9, 1872.

‡ Hon. and Rev. Latimer Neville, afterwards 9th Lord Braybrooke.

§ Newton was elected in 1877 to a Professorial Fellowship at Magdalene, which he held until the time of his death.

In the meantime Newton's father had died, and his home at Elveden was sold to the Maharaja Dhuleep Singh. "We are much disappointed at the price this place fetched. His Highness got it £5000 under the actually appraised value, and I dare not say how much under what *we* put it at ; so that our Sikh has not proved such a great find after all." Newton had the greatest affection for the place where he had been brought up, and he could never be persuaded to revisit it. Ten years later, when he was staying with Lord Walsingham at Merton :

Dhuleep Singh came over and we all went to Stanford Mere. About a month before he went shooting ducks there and wading lost a diamond said to be worth between £2000 and £3000 from a ring, and this he wants to find. Accordingly they have let the waters off to lay dry the line he took, and the soil is to be taken up, stacked like peat and sifted ! . . . Really in a very delicate way he asked me if I would go and stay at Elden, saying he should be glad to see any of the family, but I, of course, told him there would be as much pain as pleasure in doing so, and this he seemed fully to appreciate.

Excepting a short visit to Belgium in the summer of that year, the greater part of 1863 was spent in family business and in moving his belongings and his own and Wolley's collections to Cambridge, which was thenceforward to be his permanent home.

When some thirty years hence a discerning Minister of Public Worship ascertains that you will be the right man in the right place if seated on the throne of Canterbury (or say York, if you are not too fastidious), you will then find that the sifting of thirty years' Natural History accumulations is a labour of that kind which people who are not afflicted with hay-fever say "is not to be sneezed at." You will therefore I hope duly value these few lines, written amid an abomination of desolation. Tow was perhaps known in the days of Hercules, but cotton

wool certainly was not, and I am sure he would not have performed the labour Augæus set him, had he been suffering from acute chortismus aggravated by breathing an atmosphere so thickly charged with lino-byssal filaments, that you might almost roll up an egg with safety in it. Under such circumstances I proceed to answer your letter. I only wonder I am not driven quite mad and do not dream I am a Gare-fowl's egg about to be involved in a winding sheet of cotton wool and stored away for ever in the inmost and most secure compartment of one of my yellow Lapland coffers.*

In the summer of the following year he joined his friend Edward Birkbeck (afterwards Sir E. B.) in a voyage to Spitsbergen. Nowadays that island may be visited every summer by any tourist who likes to pay sufficient gold to Messrs. Cook, but in the early "sixties" the voyage was a difficult and indeed a somewhat perilous undertaking, and the story of Newton's adventures, told in the following letters to his brother Edward, has a certain historical value.

*Sultana, R.T.Y.C., Hammerfest,
June 30, 1864.*

Here I am once more at the place which I think I hate most in the world ; but I am bound to say that my second stay here has been more agreeable than my first was ; for in 1855 the snow was only beginning to go, and it rained or snowed ten days out of the eleven I passed here. Now the snow is all but gone and the weather really pleasant. To-day it is actually hot and I am writing this with my waistcoat open while on deck ; the sun is powerful enough for anything, though there is a good S.E. breeze. Yesterday the post steamer from the south arrived bringing me a cheery letter from M. and yours of the 1st May. Before I answer this, however, I will tell you of our outward voyage. We left Lowestoft

* Letter to H. B. Tristram, July 11, 1863.

on the 1st June and arrived at Aberdeen on the 4th. There we had to take in various stores, water, etc., and did not get away till the morning of the 7th. We had a fair wind to start with, but it dropped towards the afternoon, and then we had a succession of head winds, calms, fogs, etc., so that we did not sight the coast of Norway (Bremangerland) until the afternoon of the 9th. That night we were blown off again with half a gale, and then had a repetition of calms, etc., so that we did not get into Christiansund until the 13th. We sailed again the next day, having got a coast pilot, and on the 20th reached Svolvaer on one of the Lofoten islands. There we took another pilot as far as Tromsö, and then a third to this place, where we arrived on the 26th, being a victim to head winds and calms the whole way; most provoking when time has been an object. The next day Birkbeck set to work about getting a *jagt* to accompany us to Spitzbergen. Luckily there was one nearly ready, and still more luckily, though she was built for the purpose, she has never yet made a voyage, so we shall be spared the sickening stink of putrid blubber. She is to be (and I think will be) fit by the day after to-morrow, when I hope we shall sail in company for the Sound. Arrived there we shall go on board her and leaving the yacht in a safe place proceed to do as best we can. The accommodation on board the *Semmoline* is as you may suppose not very luxurious. She is about 40 tons, one cabin only, large enough for four people to lie down in, but not high enough to stand up in. The fo'castle allows of four hammocks being slung; we have ten men as crew, so where the fifth who is not on watch will sleep I don't know, or Ludwig (whom I mean to take on board) either! but I suppose they will manage it somehow. There is a small stove in the after cabin, at which we must cook, and we have two whale-boats to be manned by four men,—one of whom is a harpooner,—each. It will be roughish work, but we shall enjoy the comfort of the *Sultana* all the more when we get back. I am not at all sanguine as to my success in things ornithological; our

tedious voyage here has lessened the chance of eggs almost to *nil*, and according to Malmgren (the ornithologist of the Swedish expedition, begun some three years ago and still being carried on) the good things that have been reported from Spitzbergen are fabulous; neither *Larus sabini* nor *L. rossi* have ever revealed themselves to him.

The hire of our *jagt* for two months costs Birkbeck £200, but this is to cover all expenses, and leave the entire catch in his hands, which *may* be worth some £40 or £50. It is supposed to be a cheap bargain. Lamont's expedition must have cost him a good deal more, and when young T. Thornhill went with Ld. Dunmore they paid £120 for six weeks, and only six men and one boat. All the people here are now crazy about shark fishing. Last year it was very productive between the N. Cape and Bear Island, and our *jagt* was going there had not Birkbeck hired her. One or two vessels have already returned with full cargoes and are off again. This place looks more thriving than it did nine years ago, but yet the largest "house" smashed some twelve months since. Wolley's old friend, Andreas Berger, the man who used to declare he had *sailed* to the north of 83°, has taken to drink and has been sent by his brothers to America, where he now serves in the U.S. Navy. There are only about three people that I remember formerly, and no one that I care about. As yet we have done nothing ornithological. I sent Ludwig out one day here to get some ptarmigan, they are very large on this island, but he returned without seeing a bird. He is off again to-day at his own request, and I think means to distinguish himself.

Our party continues to be a very pleasant one. The Dr. (Wagstaff by name) and Lorange, the interpreter, both good fellows in their way, and Manners Sutton great fun at times. Birkbeck is rather too quiet and it is difficult at times to make out if he is not greatly bored with the whole thing. I dare say that occasionally he feels the want of the constant occupation he has been accustomed to, and certainly being on board a sailing vessel in a

dead calm when you are in a hurry is not a cheerful business ; but I like him altogether very much. I only wish he would smoke, an accomplishment he is not equal to, though here it is almost a positive duty ; for nothing can be more disgusting than the smell of boiling blubber on shore ; or if that operation is not going on, there is always stock-fish.

Trondhjem,
September 7, 1864.

We have returned actually without any one of our party setting eyes upon a Bear, a Walrus, or what to my mind was as bad, even a *Lagopus hemileucurus* ! Nor in the egg way has my success been even tolerable. Not a single Grey Phalarope's,—I never saw but one bird alive, but I believe it is not otherwise than numerous, though extremely local. The only point on which I think I have determined, and which is of any importance, is that the large species of Goose which frequents the Sound (and I dare say other localities) is the Pink-footed Goose ; but even of this I was unable to get an adult specimen, though I saw two in the possession of Malmgren, the Swedish naturalist, who was up there with the Scientific Expedition. All the same I shall never repent of having gone, still less of having taken Ludwig with me. It is almost a new world to have seen. I must also record among our captures nearly 50 Reindeer, and about a dozen Seals, mostly large ones.

Now that you may understand our movements I must draw you a map, for there is not one in existence that can be at all relied on, and we have been to many places which have never yet been mapped at all.

Cambridge, September 25, 1864.

The day after I dispatched my letter to you from Hammerfest, I went out to sail and shoot in Hammerfest Bay. We saw a large flock of Long-tailed Ducks, and I got 4 at 3 shots ; they did not appear to be breeding, but were immature birds that had never properly moulted.

On the evening of July 2, the *Semmoline*, the Norwegian *jagt* that Birkbeck hired, got under way; we followed the next morning (Sunday, the 3rd)—*rendezvous* Straednaes, or in case of the Stor Fjord being blocked, Ice Sound—with Stabbel, who was pilot one year on board the *Recherche*, the French exploring expedition, on board acting in the same capacity for us; he had been about 30 times to Spitzbergen and, as we found, he knew the country very well. In the afternoon we overtook our consort, and having (for us) a fair wind, she was almost out of sight by 10 o'clock p.m.

July 4. We saw Fulmars for the first time on the voyage.

5th. Supposed to be near Bear Island, but we saw nothing of it, it was hazy; large quantities of birds. Some of the Guillemots appeared to me to be different from the *U. troile*.

6th. No observation; sighted land (Syd Cap) about 5.30 p.m., bearing N.E.; 6 p.m., much drift ice; 7 p.m. the same. 11 p.m., much more ice sighted, bearing from N.N.W to S.E., and quite high, indicating that Stor Fjord was choked; accordingly altered course to N.W. Of course, the first meeting with the ice was immense excitement; everybody aloft except myself and the man at the wheel, and a wonderful sight it was to see the blocks drifting down slowly, at first small bits and far apart, then bigger and closer, until at last it looked like one close pack. We were much disappointed; having met with no ice about Bear Island, we had thought we should certainly find nothing in Stor Fjord to stop us. Thermometer in air, 33°, in water 40°, until we passed by the first bit of ice, when it fell in a quarter of an hour to 32°.

July 7. Thick and no observation. 9 a.m., sighted land from E. to N.E. Noon, land breaking out from E. to N. 7 p.m., pilot recognized S. point of Bell Sound. 10 p.m., hove-to in thick fog; *very* cold. Midnight, steered for Bell Sound; land faintly visible at times.

July 8, 2 a.m. On nearing Bell Sound found it full

of ice. 2.40 a.m., stood out ; fresh breeze and tumble sea. 5 a.m., hove-to ; thick with snow, *very* cold. 4 a.m., air 33° , water 31° ! 10.30 a.m. spoke the *Lisa* of Hammerfest who reported Ice Sound clear and gave us a shoulder of venison. Afternoon, sighted land. 4 p.m., S. point of Ice Sound bearing E.S.E. ; fresh breeze. 7 p.m., sighted entrance to Ice Sound, two or three belts of drift ice right across. 8.30, passed through 1st (or 1st and 2nd) belt ; Captain and pilot steering the ship from the rigging. 10 p.m., passed through 2nd belt (or 3rd), which was not so thick, but heavier. Birds innumerable begin to show themselves ; mostly Brun-nich's Guillemot, Northern Puffin, and Little Auk, a herd of White Whales, their ivory whiteness contrasting prettily with the colours of the ice, which was dazzling white and all shades of green and blue. 11.30 p.m., lost the breeze, lowered both boats to tow the ship. Occasional floes of ice, covered with Glaucous Gull, Kittiwake, and Fulmar, passing quite close to the shore on N. side of Sound. Under the Alkenhorn saw flocks of Geese, Brent, and a larger species ; lots of Eider Ducks. Ropes slightly frozen although the sun was shining brightly—not exactly on us.

July 9, 2.20 a.m. Came to anchor in Safe Haven, found schooner from Tromsö with Swedish Expedition on board. Lorange and I went to call and knocked up Duner, the astronomer. His colleagues Nordenskjöld and Malmgren had been absent 12 days up the Sound in a boat ; he supposed they were beset, but was not uneasy about them. 10 a.m., Birkbeck and Manners Sutton in cutter with pilot and two hands to Coal Bay, which they found full of ice. (They returned next morning with 3 Deer and a Red-necked Phalarope.) Before they started I saw the first Ivory Gull, which got a piece of meat from the Swede and came and ate it on a block of ice close by. M. Sutton shot it with my gun. The Doctor, Lorange, and I with Ludwig to land under Alkenhorn. I shot some Fulmars, Glaucous Gull, N. Puffin, etc. I made Ludwig walk along near the shore, in hopes of getting

Geese ; but he saw none. I took a higher line, where the walking seemed better, but it was extremely bad going—bogs and big stones. Dr. and L. tried to get up the cliff ; found it impossible. We all met for luncheon about a mile or so from the point, and I watched a Snow Bunting to its nest, which we got after hard work ; 4 eggs, 2 much damaged. Ludwig soon after found another ; 6 eggs, ready to hatch. He then tried to get up the cliff to the East of the Horn, and thought it accessible with a rope. Myriads of Guillemots and Little Auks. Foxes perpetually barking on cliff. L. saw one but could not get within shot. Home to *Sultana* and after dinner row towards Glacier at head of Haven ; shot Little Auk, and L. had another Fox-hunt, over loose snow with slippers on ! Swede sends us a Deer.

July 10, Sunday. M. Sutton and I with Ludwig went to the Eiderstone, got about 60 eggs, all fresh ; later in the day some of the crew went again and got about 30 more, and the last thing at night Ludwig went off once more and brought back 12 ! Constant ice-falls like thunder all day.

July 11. Another *jagt* from Tromsö put in early. Birkbeck hired a whale-boat and crew, in which he, M. Sutton, and Lorange set off to the South side of the Fjord ; the Dr. and I following in the skiff manned by three of the *Sultana's* crew. A fine day with fresh breeze in middle of Fjord ; good deal of ice coming down. Dr. shoots at a big seal which was lying asleep on a floe, but the brute woke up and rolled off into the water just before the bullet struck the ice. The whale-boat beats us hollow, but we overtook her as they landed to prospect a valley opening E. of the true Alkenfels. No Deer in it ; then on to another valley where 3 Deer were seen. I crawled up with Birkbeck within rifle shot of them, but he missed ! I had no rifle at all and I never shot at a deer, as I did not think Horace's old gun would be safe with a bullet. Subsequently the Tromsö jagtsman killed one. We brought a tent on shore and camped out in "Birkbeck Dale." M. Sutton made a good fire with

drift wood and proved to be a very good cook. Ice in evening coming down Fjord and getting aground just below our camp. Very cold at night. Guillemots and Little Auks flying high overhead to cliffs 3 or 4 miles inland.

July 12. In boats to Advent Bay. Found an old Russian Hut with smoke coming out of chimney. On landing found 3 Norwegians, who with 7 others had been shipwrecked off Pr. Charles' Foreland about six weeks before; the other 7 had gone on board a *jagt* they met. These three came on here to shoot Deer. They looked pretty happy, though one had a frightful abscess on his arm. They had lost their reckoning and asked the day of the month and week! Saw Deer on other side of Bay. Birkbeck and M. Sutton after them in skiff. B. missed again. Dr. Lorange, and I in whale-boat towards head of Bay, find some fast ice and a flock of Brent; I had a shot with M. S.'s big rifle, but missed. Lots of Eiders and N. Puffins. Just as we came to land saw 3 deer on hill not 500 yards off. Two minutes after Birkbeck came round stalking them; M. S. and Norwegian followed. Birkbeck knocked over two, right and left, but one got up again and with the third trotted off slowly towards a pass where the Norwegian lay. He killed the unwounded one and then showing himself drove the wounded deer down to where I was with the Dr. and Lorange. The latter got tremendously excited and though it was quite clear the poor beast was done for, could not be restrained from shooting it again, hitting it in the haunch! Immediately afterwards he rushed upon it with his rifle clubbed to hit it on the head, but Birkbeck and I called at him so that he gave up that idea and took to stoning it. At last the Dr. came up and throwing the beast stuck it. After that we pitched the tent. B. again went after another deer, but returned without a shot. Just before turning in I shot an Ivory Gull. Not quite so cold that night, but we saw the ice coming back up the Fjord, and next morning at 5 a.m., we found a thick fog and the Bay full of ice. B. off again after Deer, while we struck

the tent and got ready to be off, for we were afraid we might be beset. Of course, he got none, as you could scarcely see 50 yards. About 9 a.m., we got under way ; the Dr. and I in the skiff as before. It was not easy to find the way, but the Norwegians rowed as if by instinct and our crew followed as best they could. When we got within sight of the Russian Hut, we found another big boat, which turned out to be Nordenskjöld and Malmgren, who had been released two days before and were on their way back to Safe Haven. We fraternised, of course. They had been for some time quite out of biscuit and tobacco, with both of which we were able to supply them. Malmgren had a wild Goose, which I saw at once was *Anser brachyrhynchus* !

The fog still continued, but the Swedes said they meant to go home that day and invited us to follow, which we did. We soon got out of sight of land and had to steer by compass ; indeed, at one time we in the skiff lost both the other boats ; but by holding on our course came up to them again. We had had to diverge on account of the ice, and our crew could not pull the skiff as fast as the whale-boats went. About the middle of the Fjord it cleared, and the fog holding to the S. side we saw our way home well enough. A most fatiguing pull for the men, at least 30 miles from our camp to the yacht, and the tide against us most part of the way, yet we did arrive at last about 9 o'clock p.m. Found that Ludwig had been unable to do anything on the Alkenhorn even with rope and men.

14th. Rest day ; the Swedes dine with us and very good fellows they were. Malmgren readily accepted my correction of his error about the Goose, which he had taken to be *Anser segetum*. He showed me another specimen and gave me two eggs. Showed me also a ♂ *Lagopus*, the only one he had got.

July 15. Birkbeck, M. S., and Lorange to Coal Bay in Tromsø *jagt's* boat. (They returned next day with 1 Deer and 2 ♂ *Phalaropus platyrhynchus*, M. S. sure that they were breeding on flat grassy land with pools of

water on W. side of the Bay.) Capt., Dr., and I in skiff to Alkenhorn; on way found *Semmoline* coming in, boarded her, she had been in the ice and knocked off some of her sheathing which would have to be replaced. Ludwig found an egg of Fulmar carried off and sucked by a Skua or Glaucous. Coming back a seal followed us; Dr. and I gave him three barrels each, when he splashed about and we were lucky enough to get him into the boat; the small species, *Phoca fœtida* or *hispidæ*, about 4 ft. long. In evening Dr. and I to Swedish schooner to consult Malmgren as to species of seal. As I was getting on board the dinghy slipped away before I had hold of accommodation ladder and down I went; water not so cold as I should have thought (36°), and as I kept my pipe in my mouth I lost nothing.* Went back to yacht and changed. Duner and Nordenskjöld called to inquire how I was and brought some Terns' eggs. They sat talking and drinking grog till late. Heard from them a good deal about the N., which they had surveyed some years before. N. recommends our going there for Walrus.

July 16. None the worse for my ducking. On shore on E. side of Haven to get fossils. Ludwig walked over ridge and came back having found a nest of *Anser brachyrhynchus*, 2 young just hatched; bad luck. Also a breeding-place, accessible, of Little Auk. Sent Ludwig off again to try and shoot old Geese. Dr. shot and missed, brought young birds. (N.B., they have each a few feathers on their feet!) The Swedes left about midnight; Lorange and M. S. on board to see the last of them for some hours. They came home singing and were not easily prevailed upon to go to bed. M. S. humbugged Malmgren into the belief that he also was an egg-collector and got some given him: Glaucous, Pink-footed Goose, and also a very fine pair of Deer horns.

July 17, Sunday. Tried to hire Tromsø boat to go to Coal Bay to look for Phalaropes, but they insisted on

* He said afterwards that this was the only action of his life of which he was proud. "Most men," he said, "would at least have opened their mouths to say 'Ah!'"

sailing. A great bore but can't be helped. After dinner, B., M. S., Lorange, and I on board *Semmoline* to go to Mittel Hook, etc. Ice pack in Fjord and water freezing; some bumps in the night.

July 18. 8 a.m., *Semmoline* anchored in Advent Bay, wind very fresh. B. and M. S. each in whale-boat after Deer. I stayed on board. B. saw a large stag but did not get a shot. M. S. killed three. Ivory Gulls and other birds about.

July 19. 10 a.m., weighed anchor. About 11, B. and Lorange in boat to Mittel Hook. M. S. and I in other boat along shore to Eastward. Met a large seal, *Phoca barbata*, which after three shots from M. S. was harpooned; a most exciting capture, men not knowing their business nearly capsised us. Harpoon slipped first time and had to be thrown again. Beast very ferocious, dragging boat through water at great pace, and coming up alongside as if he would board us. What must a Walrus be? He was about 11 ft. long and took a deal of killing. Fulmars come and sit on water close by during operation. Wind rising. Landed, 5 p.m., on point just outside Sassen Bay, a quicksand and frozen beach above it. Looked out for Phalaropes; saw none. M. S. up valley for Deer; no luck. Red-throated Diver came quite close to me. Rigged up sails and turned over boat for shelter, as it was very cold notwithstanding a good fire. About 10 p.m., got boat off and stood out for *Semmoline* about 5 miles off. White Whales again. Perhaps lucky we could not harpoon one as they are very strong; but tried our best. Rain nearly all the way.

July 20. Arrived on board *Semmoline* soon after midnight. Wind increasing; ran for Advent Bay; could not do it, then 'bout ship and make for Sassen Bay; anchored behind headland. Gale increasing. B. and M. S. on shore in evening; 4 Deer.

July 21. Strong wind, can't get away. B. and M. S. on shore again; 5 Deer. Other boat with skipper to eastward; they returned next day; 6 Deer.

July 22. Left *Semmoline* at 11 a.m., in boat, as wind

had moderated ; reached *Sultana* in Safe Haven about 8.30 ; found they had had worse weather than ourselves.

July 23. *Semmoline* arrived at noon. With Ludwig on shore to eastward ; found two Little Auks' nests and got big young ones out. Shown site of Goose's nest. Fossil and plant hunting. *Semmoline* off at 5 p.m. B. built cairn on W. side and deposited record. *Sultana* off at 6 p.m.

24th, Sunday. Becalmed ; foggy. *Semmoline* vanished. By noon off Bell Sound. Spoke a *jagt* from the N. with 80 walrus and 90 seals !

July 25. Calm and fine ; *jagts* in company.

July 26. Do., Do., Do. Little drift ice between Bell and Horn Sounds.

27th. Calm morning, foggy. 2 p.m., heavy cross sea rising ; opening Syd Cap in company.

28th. High sea ; boats got in and made snug. Wind dropped as day got on and calm in afternoon.

29th. Calm and foggy. About 15 miles from S. Cape. *Semmoline* becalmed in-shore. M. S. shot a big seal (*Ph. barbata*) from deck and he was duly harpooned. Thick fog in evening.

July 30. Breeze from eastward, very cold ; dripping fog, clearing a little at times. Breeze freshened towards evening, but fog thick, so lay-to.

July 31, 9 a.m. *Semmoline* close by ; ordered to keep within sight ; fog all day ; consort generally not a 100 yards off.

August 1. Fog as before. Do. consort. Met ice in evening.

August 2. 1 a.m., thick fog ; large quantities of ice. Hove-to along with consort, whom we soon after lost sight of as she drifted to leeward. Supposed to be about half way between S. Cape and Hope Island. Sounding all day.

August 3. Fog as before ; wind easterly ; miserably cold ; everything wet through. A few birds in evening.

August 4. Dripping fog as before. About 5 p.m., wind got Northerly and fog lifted showing Vallis Pt.

lying N.E. by N. 7 p.m., sighted *Semmline* off land. 11.30 p.m., spoke her and made arrangements for next day. We had been so very crowded and uncomfortable before, that I decided not to go as M. S. was most anxious about it, and B. was helpless without Lorange. His intention was to be back in a week for supplies, etc.; we were to *rendezvous* at Straedmaes, supposed to be open, and I thought I should then have my turn.

August 5. Transshipping stores, bedding, etc., to *Semmline* all morning; about noon B., M. S., and Lorange off on board her. *Sultana* made sail for Straedmaes. Light wind; lots of seals, "springers," *Phoca grænlantica*, in strings, jumping out of the water and looking like the Sea-serpent.

August 6. Beating up Stor Fjord; wind N.N.W. and very light; a big iceberg floating about undecidedly. Noon, much ice across. 3 p.m., reached ice and sailed about 2 miles through it. Pilot declared it "fast" a little further up, were within 20 miles of Straedmaes. Watered from the ice, as we were running short; then stood out to S.W. Lots of seals all day, mostly *Phoca grænlantica*; Ivory Gulls were numerous; Dr. in boat shot 10, I from deck shot 3.

Sunday, August 7. Calm. Seals very numerous and tame; mostly the small species to-day. Several Ivory Gulls. Mirage of "fast" ice all along the west shore of Stor Fjord. Snow in evening.

August 8. Light air. Making for Thousand Islands to look for driftwood, being nearly out of fuel. 9 p.m. Anchored about 3 miles N. of Russö. Dr. on shore; sent Ludwig with him.

August 9. 1 a.m., Dr. returned with wood and birds. Ludwig shot 2 Phalaropes and thought he knew where there must be a nest. 9 a.m., I went ashore; flushed a female from nearly the same place; never saw her again, though I waited for an hour or two and afterwards walked all over the island. Lots of Terns breeding; found eggs fresh. Red-throated Divers also, but did not find their nest. Gnats humming and almost inclined to

bite. Afternoon ; got under way again, but calm, and adverse tide, so at 8 p.m. anchored.

August 10. 1.30., tried once more to reach Round Island. 3.0, sighted *Semmoline*. 4 a.m., they all came on board. They had cruised among the Thousand Islands and landed on Ryk Island without seeing walrus or bear. From the latter place all was ice to the N. They then stood out to the eastward in hopes of finding a channel, and sighted Gillies' Land, the country English geographers don't believe in. Ice came drifting down upon them 9 knots an hour and they had to run. They got 7 seals.

7 a.m., *Semmoline* anchored alongside ; transhipped baggage.

10 a.m., both vessels off for Ice Sound again. Tumbling sea ; N.E. wind ; rain and snow ; thick evening.

August 11. 2 a.m., sighted land. Strong wind with snow. 6 a.m., hauled up for S. Cape. 8.0, rounded S. Cape. Much heavy ice. Noon : constantly running to S.W., skirting ice. *Semmoline* still ahead ; with a wind "straight in behind" she can go faster than *Sultana*. Fine evening. Water at noon, 34° ; at 7 p.m., 43°. (Gulf Stream ?)

August 12. Fresh breeze, and fine. Keeping away still S.W. (N.B.—On my map I have not allowed for our deviations, but merely put the general course) to avoid tongues of ice. Pilot very desponding about ice ; thinks it is all coming up behind us from the N.E., and will run up the W. coast. It turned out afterwards that he mistook the land about Horn Sound for Bell Sound, 40 miles further up. We had not had a good look at it. Pike-headed Whales playing about and under ship.

August 13. Still bearing to westward to avoid ice ; light airs.

Sunday, August 14. Standing up for Ice Fjord. 11 a.m., sighted *Semmoline* astern. Fresh breeze blowing out of Sound. 2 *jagts* in Green Harbour. 3 p.m., towing with boats. 5, anchored in Safe Haven, nearly

in old place. Snow much diminished. On shore to W. side ; found old Russian Hut, flagstaff, etc., which had been covered up on former visit. B. and M. S. found Norwegian graves. After dinner on shore on E. side, sketching and getting plants.

August 15. *Semmoline* arrived. B., M. S., Dr., and Lorange in her to Coal Bay. I did not go as I thought it was useless looking there for eggs, and I can't manage Deer-stalking. Rainy day with wind.

August 16. Capt. and I with Ludwig to Russian Hut ; find more graves. Get Red Snow plants, etc. ; afterwards to Alkenhorn, caught young *Uria brünnichi* and got other birds. Shot 2 Ivory Gulls, right and left, in evening.

August 17. Calm. Salt water round ship froze at 4 a.m. ; wind rising, let go 2nd anchor ; did not leave ship. Strong gale at midnight.

August 18. Gale moderating. To Eiderstone with Ludwig. More than 12 nests still unoccupied ; one hatching ; lots of down.

August 19. Calm and sunny. On shore to N.W. of Haven ; found shells, etc. Scraping ship's sides and watering. Fresh water on deck frozen at night.

August 20. On shore at Fossil Ridge, collecting fossils and plants. Ludwig out later seal shooting ; no luck.

Sunday, August 21. 3.30, *Semmoline* returned with 19 Deer, 11 Brent Geese, etc. ; nothing particular. 7 a.m., weighed anchor ; wind light. 4 p.m., thick fog. Lost sight of Spitzbergen.

August 22. Light wind. Saw last Ivory Gull.

August 23. Moderate wind. Saw last Glaucous Gull.

August 24. Light wind. Spoke *Nora* of Hammerfest shark-fishing ; one hauled up as we passed. Sighted Bear Island on port beam about 3.30 p.m.

August 25, 3 a.m. Again sighted Bear Island. Light N.W. breeze. First stars seen.

August 26. Very light wind ; much warmer. Sighted land in afternoon.

August 27. Anchored at Hammerfest at 4 p.m., and got our letters.

So ends my Spitzbergen journal. I found the mail steamer going to sail at 1 a.m. on the 28th (Sunday) and went on board her. At Tromsö I parted with Ludwig, with great regret. He is the handiest and most obliging fellow I ever had to do with, and you may speak to him just as you would to a companion and he does not presume upon it. He was to start next day for Bals Fjord, whence he would walk across to Mukkanoma and so get to Muoniovara.

Of my voyage down the coast of Norway I need not say much ; it was not a pleasant one. The country is thriving and the people are not improved by it. The merchants are as boorish as Germans, and the lower classes as extortionate as Jews. They all spit infinitely worse than Yankees. The *Prinds Gustav* is a small steamer constructed to carry about 15 cabin passengers and we had nearly 40. The further south we came, the more people came on board, and the closer every door, port and window were shut. To make matters worse, the winter hours were adopted and we scarcely ever ran at night ; this made the voyage three days longer.

CHAPTER VII

DR. SHIPLEY'S REMINISCENCES

By the Master of Christ's, Sir A. E. Shipley, G.B.E., F.R.S.

NEWTON was admitted a member of Magdalene College in the spring of 1848, the entry in the admission book running as follows :—

Maii 30, 1848

Alfred Newton, filius Gulielmi Newton de Eldon Hall in comitatu Norfolkensi, armigeri, et uxoris ejus Elizæ Milnes privatim institutus, annos natus XIX admissus est Pensionarius

Tutoribus { Edv. Warter.
V. Raven.

His name appears for the first time in the Calendar for 1849, and he apparently came into residence in the October Term of the previous year. Altogether there were about sixty students residing at Magdalene at that time, including four sizars, and two "Ten-year men," a class of student which is now as extinct as the dodo. They were usually, but not always, country clergy, who by keeping one term in each of ten years and passing the necessary examinations obtained a degree.

The Cambridge he came up to was very different from the Cambridge of to-day. It is even possible that he arrived on a coach or in a post-chay, for the railway line to Norfolk was only opened three years before, and the unlovely station which stands to-day much as it stood seventy years ago, was only built in 1845. At first it was provided with the usual two platforms, and no one

seems now to know why one of these was done away with, and the platform so elongated that passengers perform a perceptible part of their journey on foot.

Still in those days people were easily pleased, and the author of the "Pictorial Guide to Cambridge" (1867), after referring to coaching as a still extant but semi-barbarous mode of transit, breaks into the following rhapsody over our Railway Station :

• The progress of the train has ceased, the rebounding of the carriages coming to a state of rest is over, the voices of porters and the opening of doors has commenced, and here we are standing on the pavement of the Cambridge station. What a surprise ! I had no idea of such a length of building, all covered over, and comfortable ; it cannot be much less than four hundred feet. This is really one of the best stations I have seen for many a day. But how is it the stream of passengers is dividing ? Oh, I see, one half are taking themselves off to that handsome refreshment room, and the other half are passing through the building to trudge on foot into the town, or to indulge themselves with a cheap ride to the same place.

When Newton came into residence the Master of Magdalene was the Hon. and Very Reverend George Neville Grenville, Dean of Windsor, who had been appointed in 1813. He and his successor, the Hon. and Rev. Latimer Neville, later Lord Braybrooke, presided over the College for ninety-one years. The Tutors were E. Warter and V. Raven, and Mynors Bright, a well-known authority on "Pepys' Diary" was Lecturer in Classics, Dean and Prælector. At that time there were but four Foundation Fellows in the College, but there were no less than thirteen "by" Fellowships, though three of these were vacant in 1849. The by-

Fellows all received some small emolument from one or other of eight separate Foundations, which were consolidated under the statutes of 1882, when the emoluments of these Foundations were merged in the general funds of the College. As was the habit of the times, nearly all the Fellows were in holy orders and many of them non-resident.

There is little record of Newton as an undergraduate, but there is at least one significant fact. He was at that time notable for his English Essays, and I believe won a College prize in this subject. It is sometimes said that men of science cannot write English. I don't believe it. Certainly they can and do write better English than literary men write Science. But in any case, Newton was a master of words ; they never dominated him. He used few, mostly Anglo-Saxon words, but he used them with an expert's sense of their meaning. In this, as in other aspects of his work, he showed a quite peculiar sense of the just and the fitting.

Whilst an undergraduate at Magdalene, Newton occupied the rooms which later were made fireproof and now house the Pepysian Library. He was never in the technical sense a scholar of the College, in fact, he took a " Poll degree," but after taking his degree, the College Order-book of 1854 records :

Ego Alfred Newton admissus fui in sodalitium hujus Collegii pro Magistro Drury.

This was a Fellowship known as the " Norfolk travelling Fellowship," and restricted to those whose fathers belonged to the county of Norfolk ; but the holder was not a Foundation Fellow. The funds at the disposal of the Norfolk Fellow were later merged in the general funds of the College when the new statutes of 1882 were sanctioned by Parliament. It was only in 1877, when he had held the Professorship of Zoology and

Comparative Anatomy for eleven years, that he became a Foundation Fellow.

The town to which Newton came up in his nineteenth year was much smaller than to-day. The population in 1851 was 27,815; to-day, with the extensions of the town boundaries which have taken place since the beginning of this century, it reaches the figure of 55,812. The University also has more than doubled its size. In 1849 there were 1775 undergraduates, 3786 members of the Senate, and 6906 members of the University "on the Boards"; to-day the numbers are 3623, 7293, and 15,094 respectively.* The distribution of the students, too, has altered; in those days Pembroke had but 23 undergraduates all told, Magdalene just over 50.

The appearance of the town was almost mediæval. There were but few houses—barely a dozen—south of Parker's Piece; Romsey Town, New Chesterton, and Newnham hardly existed; and to the north the "handsome and commodious shirehouse" opened in 1842 almost coincided with the limits of the borough along the Huntingdon Road. To make way for this Court of Justice the last relic of the Castle, a massive and spacious gate-house, was removed. The older buildings of the Observatory looked then much as they look now, but the married Don was then unthought-of, and the innumerable red-brick villas which stretch yearly further towards the setting sun, between the Madingley and the Barton Roads were undreamt of. There was no Selwyn, no Ridley Hall, no Girton, no Newnham, no Westminster or Cheshunt Colleges, and no Clergy-Training School, also there was no Theatre.

The Fitzwilliam Museum stood unfinished with the

* This was written in June, 1914. The numbers at present (November, 1920) are 4776, 7780, and 15,862 respectively.

then much smaller Addenbrooke's Hospital almost opposite. The Fitzwilliam art collections, which had been housed in the old Perse School in Free School Lane, were still being exhibited in 1848 in the east room of the University Library. The old College buildings still stood at Pembroke, and small houses occupied the site of the existing College buildings now facing Trumpington Street to the south of the Chapel. Waterhouse's "structures" were not built until the early 'seventies, and Scott's beautiful court in Pembroke Street not until 1883. In the middle of the last century people apparently preferred privacy, and where we now have open railings they had walls. There was a wall in front of Peterhouse and another shut off the little garden near the east end of Trinity Chapel; a third wall enclosed the graveyard of St. Andrew's Church, and another had but recently hidden the Round Church. The new buildings of the Pitt Press were opened in 1833 and the old Lodge and neighbouring buildings which clung round the east end of King's Chapel had been by this time removed, but houses still clustered round the east end of St. Edward's Church and Great St. Mary's, and, indeed, the greater part of Market Hill was cumbered with buildings. The market was then held in an L-shaped space along the east and the southern side, and the old conduit which now stands at the corner of the Lensfield and Trumpington Roads stood at the west end of the southern limb. The greater part of the marketing in those days was done on Peas Hill, at that time a more spacious area than our present market-place, and Cambridge is one of the few towns left where the weekly market is still a feature in the life of the citizens. The year after Newton came up a providential fire destroyed some of those houses clustering around the east end of St. Mary's, and the opportunity was taken to remove the others.

The heavy gallery which occupied the whole width and some half of the depth of the chancel of Great St. Mary's remained almost until Newton became Professor. Here the Heads of Houses and the Doctors listened to, or slept through, the University sermon in great state, the Vice-Chancellor sitting on a throne in the centre of the front row. The University Library then sheltered on the west side "the Philosophy School," on the north the Divinity School, on the south "the School for Civil Law and Physic," and on the east a room where the Norrisian and other Professors of Divinity lectured. The Registry where the Registrary then carried on his business adjoined the Divinity School. All these rooms now happily form part of the Library, the heart of the University. Gonville and Caius College then presented a more modest and chastened front to the world than it does now, but was, about this time, considering plans for the existing Hall and Combination Room, and towards the end of the 'sixties Waterhouse's buildings were erected, replacing amongst other things the Theatre Coffee House and the original business house of the publishing firm of Macmillan. All Saints' Church, once known as Allhallows-in-the-Jewry, stood over against Trinity, with its tower projecting over the narrow footpath and pierced by the "side-walk." The Selwyn Divinity Schools and the Literary Schools did not then exist in St. John's Street, but on the other side of the road to the Pensionary, which stood where now they stand, was a curious congeries of buildings known as the Labyrinth, a relic of the Hospital founded about 1200 by a burgess of Cambridge, John Frost. Here in dark and ill-arranged rooms lived a number of the more evangelical students, Simeonites as they were then called. These students and their dwellings are vividly described by Samuel Butler in his novel, "The Way of All Flesh." The Labyrinth occupied part

of the area now covered by Scott's Chapel at St. John's. The old chapel stood till 1869 and the Master's Lodge then occupied the north end of the Hall and the north side of the second court. The new Lodge near to Magdalene College was only erected in 1863, and in Newton's student-days a lane known as St. John's Lane ran from St. John's Street along the north side of the College to a small hythe which abutted on the river, close to the west end of the Library of St. John's.

Holy Sepulchre had recently been "restored" by the Cambridge Camden Society, to the despair of all later archaeologists, and the opportunity was probably then taken of removing the wall which, as an old print shows, shielded the Round Church from the vulgar gaze. A little way beyond Newton's College stood in his student-days the old Church of St. Giles. "It is not improbable that this is the parent parish of Cambridge," writes Mr. T. D. Atkinson. We must never forget that Cambridge in origin was over the river, although the only "transpontine" College—as a late Master of Trinity designated Magdalene—was that to which Newton belonged. The Church, even after being restored by the ingenious Professor Farish, retained many features of interest, and it is a great pity that it was destroyed when the present plain, one might even say ugly, edifice was erected in 1875.

The College which Newton joined in 1849 was somewhat different from the Magdalene of to-day. A year or two before his "coming up," the "Cambridge Guide" describes the outer of its two courts as "very neatly stuccoed and sashed—and from the walls having been lately surmounted by an open parapet the whole presents an air of great neatness and elegance." "The chapel is about 50 feet long, 18 broad; it is fitted up in an exceedingly neat and pleasing manner, and has a curious

Altar-piece of plaster of Paris representing the two Marys at the Sepulchre after the Resurrection, in alto-relievo, by the ingenious Mr. Collins." The words "*neat*" and "*neatness*" were overworked words in the middle of the last century and probably felt correspondingly tired.

But to return to the chapel; towards the end of the seventeenth century the space in the roof had been floored in to make an upper chamber in which the College Library was then placed, but about the time of Newton's arrival at Magdalene this upper story was removed, and the chapel was heightened, and by adding to it part of the Master's old Lodge lengthened. These "*lodgings*" had occupied the area now covered by the College Library, with an outer staircase and a northern wing, both of which disappeared when the present Lodge to the north of the Collegé was built in 1835.

The restoration of the chapel began in 1847 and lasted over a period of four or five years. During this time all the "*incongruities* were swept away and the chapel skilfully and beautifully restored to its original Gothic character; the fine, high-pitched timber roof of the fifteenth century was once more restored to view; the entire building fitted up with richly-carved and appropriate wood-work; the east window opened and with two side windows filled with painted glass." To those of us who only knew the Professor as a living and teaching zoologist it came as a surprise when we learned that he had painted one of the figures of these windows. He himself never alluded to it.

On the southern slope of Magdalene towards the river is now an open garden, with a parapet and water-gate—which no one ever seems to use—flanked at the eastern end by the new buildings of the kitchen and by a comely set of students' quarters. These last buildings

Newton never saw. This garden and the new buildings occupy a site bought in part from Jesus College in 1790 and in part from the town in the following year. When Newton came up, and for a quarter of a century afterwards, this site was covered by a congestion of small tenements, those abutting on the river-side being for the most part small ale-houses. In the middle of the last century much of the food and the wood and reeds used for firing came into Cambridge "up the Cam," and numerous small "hythes" such as we can still see to-day between the Magdalene Bridge and the northern side of St. John's College were then conspicuous along the upper reaches of the Cam, between Magdalene and St. John's and above Queen's, where the great mills were, and although for the most part put out of action, still are. The towing horses of the barges were cast off after passing Midsummer Common, and then the barges were punted along the backs of the colleges by stout poles called "spreads." In those days the bargee was a social feature in the University, as readers of Thackeray's "Codlingsby" will recall.

In Mr. T. D. Atkinson's plan of Magdalene the houses huddled on this narrow site were separated from the College by a narrow pathway known as Salmon's Lane, but one of Newton's colleagues has told me that Newton used to say there were two lanes running parallel with the river and two rows of tenements between them; after all, it is difficult to be incredulous about the overcrowding of small tenements sixty-five years ago, but one outstanding fact is that the corner house nearest to the bridge was a more substantial building and sheltered a well-known doctor of the town.

Newton came of a country-gentry stock. The family fortune was based on the West Indies, and it suffered the general decline which accompanied the abolition of

slavery. His father was the owner of the Elveden estate near Thetford, which was later sold to Prince Dhuleep Singh and afterwards passed into the possession of Lord Iveagh. His brothers, as brothers in county families in those days did, went their several ways into the various professions. Alfred Newton himself was destined for the Church ; there was, I believe, a family living, and I well remember on one sunny August afternoon in his later years as he and I went together on a drive over the chalk hills between Cherry Hinton and the Hills Road, his telling me this, and adding that " the nearer he got to orders the less he liked the look of them." Not that he was not always a Christian and a genuinely religious man, but he had his views, and Newton when he had his views never varied them or abated one iota of them. On the whole, I am inclined to think that it made for peace in the Established Church when Newton decided not to take holy orders.

When I came up to Cambridge in 1880, a shy undergraduate, who had spent one year at St. Bartholomew's Hospital, where with the help of Stephen Paget I had dissected the leg of the wife of the butler * of the First Napoleon, I and my contemporaries fell under the glamour of Morphology. We were not so very far off from the " Origin of Species," and we were even contemporaneous with Darwin's later works, all of which dealt with living creatures, living organisms, and yet our obsession was with the dead, with bodies beautifully preserved and cut into the most refined slices, stained in various pigments so that like the king's daughter of the psalmist they were " all glorious within." Professor Adami, the distinguished pathologist, and I spent our

* He was an old soldier who had served in this capacity to Napoleon I. at Longwood and in his old age had married a young wife, who through misfortune died in the Hospital, and, no one claiming the body, it was dissected.

afternoons during half a term in cutting into thin slices a small *Amphioxus*—there was no automatic microscope then, and each section had to be mounted on a separate slide—when really we should have been better employed in rowing or in playing football. It was a curious, and to me a still unexplained, result of Darwin's teaching that the younger men who—at a very great distance—followed his footsteps, followed them not in a direct line but at an angle, a morphological, an embryological, and an historical angle, an angle which, to use again an Americanism, anyway pointed more to the dead than the living. Professor Francis Balfour was about this time finishing his epoch-making work on Comparative Embryology. He was in a way the founder of a new science, and without doubt was the most attractive man I have ever met. He had to a peculiar degree that elusive and indefinable quality, charm, and he charmed us all. Educated humanity is ever turning this way and that, trying to explore the unknown, to read the riddle of our being. It will never be solved, and were it, what would be left? In the early 'eighties comparative embryology seemed the most likely means of reaching some solution of this eternal problem, and in a minor way, under Balfour and his lieutenant Adam Sedgwick, we all became comparative embryologists.

Newton, however, had but little interest in such subjects; not that he opposed them in any way; indeed, he promoted them by his personal influence, and by lending his demonstrator to the acting Head of the Morphological Laboratory. Although in some respects old-fashioned and with fixed ideas, he was like Mr. Crisparkle's mother, "always open to discussion," but he invariably looked, as the China shepherdess looked, as though he would like to see the discussion that would change *his* mind.

Yet he *was* open to argument, and without professing to study or to care much about the newer aspects of his subjects, he invariably helped them forward. It is characteristic of his liberality of thought that when some years before his death he nominated a deputy to give his formal lectures, he chose William Bateson, the brilliant prophet of Mendelianism, a subject the Professor was uninterested in and probably mistrusted. He was, in fact, a mid-Victorian zoologist, very painstaking, quite unusually accurate, old-fashioned in some ways, but we must never forget that he was one of the first of the zoologists of repute to accept and champion the views of Charles Darwin.

When I was a student his two courses of lectures were on Darwinism and on the Geographical Distribution of Animals. I don't think Newton liked lecturing. In the affairs of ordinary life he did not seem shy, but he did seem shy about lecturing. To begin with, he chose the uncomfortable hour of 1 p.m. I once also had to lecture for two or three years at that unhappy hour, and meeting at some social function a Girton lady who came to hear me, I apologised to her for frequently stopping before 2 p.m. on the ground of hunger. "Oh," she said, "*we* had always assumed that you'd lunched," and she seemed to think her or the other ladies' assumption as satisfactory to me as a mutton chop.

Newton's lectures were desperately dry and very formal. The Professor sat before a reading desk and read every word of the discourse from a written manuscript, written in his minute hand with a broad quill, so that all the letters looked the same, like the Burmese script. At long intervals there was drawn the outline of a tumbler, like the wine-glasses which used to indicate in the foreign "Bradshaws" those railway stations which boasted of the existence of refreshment-rooms.

Whenever the Professor came to these outlines he religiously took a sip of water. Whether it was the time of day or whether it was that we students were all absorbed in Comparative Embryology and in Morphology, the attendance was always small. I went during my second and third year, and at times was the sole auditor. Not that that made the least difference to the Professor. He steadily and relentlessly read on—"the majority of you now present know," "most of my audience are well aware," and similar phrases left me in considerable doubt as to what parts of me were "the majority" and which the "most."

Where the Professor excelled was in informal talks in his room after lecture and in his home in the Old Lodge at Magdalene College. He was a zoologist, not a necrologist. As far as his lameness had permitted he had always been an open-air man. Owing to the vastness of the subject, every student of zoology must have a special, favourite group of animals, and Newton cared most about birds. But he was no "mere ornithologist," as his unsuccessful opponent at the election to the professorship described him in 1866. His shilling textbook "Zoology," one of the Manuals of Elementary Science, published by the Society for the Promotion of Christian Knowledge, was a model of its kind, and undoubtedly should be better known, for in clear and clean-cut English it covered practically every branch of zoology, and to the younger student presented an ordered framework upon which he could hang his scattered and isolated, but none the less real, items of knowledge.

Newton's Sunday evenings were great institutions in the life of all of us who cared about biological science thirty odd years ago and onwards till his death. They began in a small way; when the Professor first became

a Professor in 1866 the number of those who passed the Natural Science Tripos was but nine, the year Newton died the numbers were, in Part I. 147, and in Part II. 36. One of his best friends, one who "came up" about the time Newton was elected to the Chair of Zoology and Comparative Anatomy, and who in those remote days frequented the Sunday evenings at Magdalene College, told me that when his younger brother came up a few years later he sent by his hand a brace of partridges. The freshman knocked at the door, and entering the room, faced the back of the Professor, and after an almost audible pause, said "Please, sir, I've brought you some birds." "Skins or skeletons," flashed back the ornithologist, always more occupied in ornithology than in gastronomy. Not that Newton did not value a good dinner. He breakfasted a little late, but very heartily, and he rather despised those who ate lunch—a biscuit and a glass of sherry buoyed him up for his one o'clock lecture—but he enjoyed his dinner. One curious custom he had, he always watered his wine; he used to request a carafe to be placed near him and poured a little water into each glass of wine, though if I recollect aright he spared the port.

On Sunday evenings after a glass, or perhaps two, of port, and a couple of exiguous Russian cigarettes in the Combination Room, the Professor used to retire, and twenty minutes later those who were privileged to dine with him in Hall went through the garden entrance, and so into the inner room, where we found him seated in an arm-chair just within the doors. The room was plainly but comfortably furnished in the mode of the Victorian period; the fire was very hot, the guests were seated in a large circle of chairs, something like the Christy Minstrels of our boyish days; and yet in spite of these obvious disadvantages Newton's Sunday

evenings saved Zoology as the science of living animals in Cambridge. Often there were awkward pauses, but the Professor sat through them all, making paper spills out of old letters, and smoking pipe after pipe. To him the little Russian cigarettes were merely "hors d'œuvres," the real business was tobacco in a pipe, and he held very strong views about pipe racks. The bowl of the pipe must be supported so as to be lower than the stem, and the numerous racks that supported his innumerable pipes exemplified this principle. These Sunday evenings were a little formal and a little dull, we were all a little afraid of the Professor, and much more afraid of ourselves. Sitting in that semicircle of seats it was difficult if not impossible to break up into groups, and yet those Sunday evenings and some others which I attended in Oscar Browning's rooms at King's and in Vine's at my own College helped me more than I can say. He was, in the real and the best sense, a man of the world, and hence he was able to help us and did help us in many ways, not in the least zoological.

In politics and in daily life Newton was a Conservative, even a Tory, he took little part in party affairs, having more important things to trouble about, but he resented and opposed any change in "the daily round, the common task." Alterations in the College dinner, the introduction of an organ into the chapel, the presence of ladies at divine service, all met with his disapproval and his dissent, and neither were silent. For many years he presided as the first Chairman of the Board of Biology and Geology constituted under the statutes of 1881. He was a just and equable chairman, better, indeed, in the chair than out of it, but he never approved of the existence of the body he presided over, and nothing would induce him to vote either for or against so new-fangled an idea as a Doctor of Science. His

conservative caution spread at times to his writings. We have seen that he was able and even willing to accept new ideas and to teach them, when he had by careful thought arrived at the conviction that they were sound, still in his *magnum opus*, the "Dictionary of Birds," he preferred an alphabetical arrangement of his material rather than commit himself to any of the existing schemes of classification. None of these seemed to him satisfactory, and of course no system of classification of natural objects ever can be.

Here may I add a few lines I wrote about Newton very shortly after his death, when my memory of him, never to be dulled, was, perhaps, a little sharper than now ?

The Museum of Zoology in Cambridge, which has grown to be one of the largest in the kingdom, attained its position largely under his guidance. He was always on the look out for new and valuable specimens, constantly, though anonymously, buying and presenting these. He very greatly disliked any of his donations to be recorded in the Reports of the Museums and Lecture Rooms Syndicate. His gifts, not only of specimens, but of books, to the Library of the department must have cost a very large sum. His interest in old books and early editions was that of a scholar. He spent much time and knowledge on the University Library, but his special province was the Philosophical Library, situated in the heart of the Museums, over whose destiny he presided for many years. It is largely due to him that the Library at the present time takes in some 600 periodicals, and nothing gave him greater satisfaction than when, by the careful study of booksellers' lists, he was able to complete a "broken set." There was something peculiarly scholarly about Newton's writings ; and in small matters of grammar and punctuation he was punctilious in a way that is now becoming rare. Very little that he published was of an ephemeral

nature, and his printed word is characterised by great width of knowledge, untiring research, and an unusual degree of accuracy. In trying to sum up Newton's character one's "mind naturally reverts," as Mrs. R. Wilfer said, to Dickens' description of Sir Leicester Dedlock, "He is a gentleman of strict conscience, disdainful of all littleness and meanness, and ready at the shortest notice to die any death you may please to mention rather than give occasion for the least impeachment of his integrity. He is an honourable, obstinate, truthful, high-spirited . . . man." I have left out the words "intensely prejudiced, perfectly unreasonable," because although at times Newton was prejudiced and was unreasonable, the adjectives Dickens used go beyond my estimate of these traits in his character.

Once more to quote what I wrote soon after his death :

When once you were a friend of Newton's, you were always his friend. He was possessed of the old-fashioned courtesy of manner, and a certain leisureliness of habit, which made a visitor feel that he was not trespassing on the time of his host. Both in appearance and in character he had the finest attributes of the old race of English country gentlemen, to which by birth he belonged.

CHAPTER VIII

EARLY DAYS OF DARWINISM

IN the early part of 1858 Newton accompanied John Wolley to Iceland for the purpose of inquiring into the supposed recent extinction of the Great Auk, and into the causes which had brought about that result. During two months of enforced inaction in an Iceland village, the two men had opportunities of frequently discussing questions that were then occupying the minds of biologists. Among these were, "What is a Species?" and "How did a Species begin?"—the latter a question all the more naturally arising from the fact that their particular business was to find out how a species had come to an end. Both of them were well acquainted with the views of Lamarck and the author of the "Vestiges of Creation," and also of the contrary views of Sir Charles Lyell and of Adam Sedgwick. Moreover, in the preceding year, Newton had visited America, where he had frequently been impressed with the opinions of Professor Louis Agassiz, which were, briefly, that each species had had not one Centre of Creation, but that many—perhaps most—species had been created in several places, at sundry times, and possibly in vast numbers. These various conflicting theories gave rise to long discussions, often turning on the prevalence of Blue Foxes in Iceland, the relations between the Red Grouse and the Willow Grouse, and so forth; but they never produced any definite result beyond a firm conviction that, for the salvation of Botany and Zoology there must soon be found a solution of those problems.

On his way back from Iceland, Newton paid a visit to his friend H. B. Tristram (at that time rector of Castle Eden), who had recently made two journeys to Algeria and Tunis, where he had diligently collected specimens of birds and reptiles. Among these he was particularly interested by the desert-forms represented in the large series of Larks or Chats.

Generally the inhabitants of the desert took a dull drab, but occasionally a warm or sand-coloured hue, while those which did not dwell in the desert wore a suit of much more decided and variegated tint. . . I was at once reminded of what, in a less degree, I had been shown and told the year before at Washington by Professor Baird, who pointed out to me the variations exhibited by examples of the same species of several groups of North American birds, according as they came from woodland, prairie, or elevated country. Among all these were indications of a similar general law. The woodland examples were the most highly coloured. Those from the prairies were less deeply tinted; while those from the high plains—districts which, from what I heard, seemed to approach in some degree the condition of a desert such as is found in the Old World—exhibited a fainter coloration. Here, then, was a sign that like causes produced like effects even at the enormous distances which separated the several localities. The effects were plainly visible to the eye; what were the causes? The only explanation offered to me by Professor Baird, so far as I remember, was that the chemical action of light, uninterrupted by any kind of shade, produced the effect that was patent. With this explanation, though it hardly seemed satisfactory, one was fain to be content.

It is thus apparent that Newton was ready and anxious for a reasonable explanation of these problems, and that he embraced the new teaching with enthusiasm

will be evident from the following letters and extracts from his writings.

Not many days after my return home there reached me the part of the *Journal of the Linnean Society* which bears on its cover the date 20th August, 1858, and contains the papers by Mr. Darwin and Mr. Wallace, which were communicated to that Society at its special meeting of the first of July preceding, by Sir Charles Lyell, and Dr. (now Sir Joseph) Hooker. I think I had been away from home the day this publication arrived, and I found it when I came back in the evening. At all events, I know that I sat up late that night to read it ; and never shall I forget the impression it made upon me. Herein was contained a perfectly simple solution of all the difficulties which had been troubling me for months past. I hardly know whether I at first felt more vexed at the solution not having occurred to me than pleased that it had been found at all. However, after reading these papers more than once, I went to bed satisfied that a solution had been found. All personal feeling apart, it came to me like the direct revelation of a higher power ; and I awoke next morning with the consciousness that there was an end of all the mystery in the simple phrase, "Natural Selection." I am free to confess that in my joy I did not then perceive, and I cannot say when I did begin to perceive, that though my especial puzzles were thus explained, dozens, scores, nay, hundreds of other difficulties lay in the path, which would require an amount of knowledge, to be derived from experiment, observation, and close reasoning, of which I could form no notion, before this key to the "mystery of mysteries" could be said to be perfected ; but I was convinced a *vera causa* had been found, and that by its aid one of the greatest secrets of creation was going to be unlocked. I lost no time in drawing the attention of some of my friends, with whom I happened to be at the time in correspondence, to the discovery of Mr. Darwin and Mr. Wallace ; and I must acknowledge that

I was somewhat disappointed to find that they did not so readily as I had hoped approve of the new theory. In some quarters I failed to attract notice ; in others my efforts received only a qualified approval. But I am sure I was not discouraged in consequence ; and I never doubted for one moment, then nor since, that we had one of the grandest discoveries of the age—a discovery all the more grand because it was so simple.*

At once a hundred difficulties were swept away : there seemed to be a plausible answer to the question, "What is a Species ?" The new theory might even explain how one variety or race might pass into another, but the doubt arose whether the process of invisible steps could do more than that and produce the stupendous effects, which are now expressed by the word Evolution.

That the doubt thus implied was occasionally staggering I do not deny ; but I always found that, even if for a time I reeled under it, I could by further reflection recover my balance and resume my position. The consideration which thus enabled me to keep, on the whole, a steady attitude, was one furnished by a very small amount of mathematics acquired in earlier days and fortunately yet borne in mind. One has not to go far in the study of algebra before one meets with a theorem in which one finds that certain properties can be proved for certain definite numbers in succession. If an indefinite number be taken, the same property can be proved to exist for the number next to it. Hence mathematicians (those most sceptical of men) conclude that this theorem is universally true. Now, to apply this. The existence of variation, however slight that variation might be, once accepted (and a very moderate amount of experience showed that variation did exist), who could doubt that variation might in certain circumstances go on indefinitely ? Whether it would do so or not was another matter ; but what naturalist had

* "I should add that at this time I had no acquaintance personally or by correspondence with either of the discoverers."

ever with good reason attempted to set a limit to variation? Until such limitation, or cause for limitation, was shown, I felt I was justified in concluding that variation might go on indefinitely—that variation might extend, as indeed there was some positive evidence of its doing, from coloration to minor points of structure, and from minor to major points. Thus it seemed to me that, if mathematicians were right in admitting the truth of Euler's proof of the Binomial Theorem, I could not be very wrong in accepting the truth of Evolution by means of Natural Selection. When afterwards I came to read Mr. Darwin's "Animals and Plants under Domestication," the aptness of my application of the mathematical reasoning seemed to be more and more perfect. In those domesticated animals and plants of which the origin was perfectly certain, we had the definite quantities required for the illustration: in the domesticated animals and plants of which the origin was not so certain, we had the indefinite quantities: in the wild animals and plants the unknown quantities. We could prove by experiment that such and such results followed from any next step with regard to our known quantities, and by experiment could prove that similar results followed from the next step with regard to our indefinite quantities. Were we not justified then in concluding that the like results would follow from our unknown quantities? *

* "I had often wondered that this obvious illustration had not occurred to Mr. Darwin, in none of whose works have I noticed any allusion to it; but the cause of the omission I did not suspect until I read his Autobiography. It was probably due to the fact of his not having made sufficient progress in mathematics to become aware of this simple theorem. He has told us (vol. i. p. 46), 'I attempted mathematics and even went during the summer of 1828 with a private tutor (a very dull man) to Barmouth, but I got on very slowly. The work was repugnant to me, chiefly from my not being able to see any meaning in the early steps in algebra. This impatience was very foolish and in after years I have deeply regretted I did not proceed far enough at least to understand something of the leading principles of mathematics.' He goes on to declare that he did not believe he 'should ever have succeeded beyond a very low grade.' To this belief we may perhaps demur. Under good tuition there seems no reason why he should not have derived as much satisfaction from

Only four days after the publication of the famous paper, and one day after he had received and read it, Newton began to apply the principles of the theory of Darwin and Wallace to particular cases within his own knowledge.

I have been very much pleased with a paper in the last number of the Linnean Society's *Proc.* on "the tendency of Species to form Varieties and on the Perpetuation of Varieties and Species by Natural means of selection," by Darwin and Wallace. I am not quite sure that I altogether agree with them, but there is very much in it that is very good, and most of the ideas propounded are original. I think there is a hint in it on which you might speak, on the subject I suggested to you when at Castle Eden as being a likely one for a paper before the Linnean Society, the variations induced by desert climate, as exemplified in North African Larks and Wheatears. The idea is perhaps not new, *i.e.* many naturalists know perfectly well that birds from desert localities do not exactly resemble individuals of the same species (*i.e.* good species, not those of bird-namers) from more favoured districts. Baird of Washington is quite familiar with this fact, and has or is about to put it into print together with the reasons whence he draws his conclusions. The great Gould, too, has made remarks (*Proc. Z.S.*, 1855, p. 78) bearing more or less on the same subject, with respect to the coloration of birds inhabiting forests and plains, sunny and cloudy atmospheres; but I do not suppose any one has connected these facts with the theory (though it is more than theory) of Darwin and Wallace, nor has any one practically applied their ideas. It seems to me that they can be connected and should be connected thus: any modification of the structure (using the word in its widest sense, even to comprehend

algebra as he tells us a few pages before (vol. i. p. 33) he did from geometry, and as much delight as when the principle of the vernier was explained to him"—Extract from "Early Days of Darwinism," *Macmillan's Magazine*, February, 1883.

a mere change of colour) of an animal must in some way or other affect the ease or difficulty with which it contrives to maintain its existence. In the struggle for life which we know to be going on among all species, a very slight change for the better, such as improved means of escaping from its natural enemies (which would be the effect of an alteration in colour from one differing much to one closely resembling the hue of surrounding objects), would give that variety a great advantage over the typical or other forms of the species. Allow the advantage to be continued for a considerable period, and the variety becomes not only a race with its variations still more strongly imprinted upon it, but the typical form or varieties having experienced changes not advantageous to their life may even become extinct. Thus to apply the case, suppose an Algerian desert to become colonised by a few pairs of Crested Lark; we know that the probability is that of them one or two pairs would be likely to be of a darker complexion than the others, these and such of their offspring as most resembled them would become more liable to capture by their natural enemies, hawks, carnivorous beasts, etc.; the lighter coloured ones would enjoy more or less immunity from such attacks; let the state of things continue a few hundred years, the dark-coloured individuals would be exterminated, the lighter-coloured remain and inhabit the land.

Again, smaller or shorter-billed varieties would undergo comparative difficulty in finding food when food was not abundant, and had to be picked out from crevices among stones, these would be in comparatively reduced condition, in the breeding season they would not feel their capabilities were such as inclined them to matrimony, the consequences would be in a few hundred years the longer-billed varieties would be the most numerous, they would become a race, in a few hundred years more they would be the sole possessors of the land, the shorter-billed fellows dying out of their way until that race was extinct. Here are only two cases enume-

rated which might serve to create, as it were, a new species from an old one, yet they are perfectly natural ones, and such as I think must occur, have occurred, and possibly be occurring still. We know so very little of the causes which, in by far the majority, if not in nearly all cases, make species rare or common, that there may be hundreds of others at work, some even more powerful than these, that go to perpetuate certain forms in Darwin's words according to natural means of selection. You may have a mere individual difference in the organs of digestion, and in this way produce a Gillaroo Trout with his gizzard-like stomach, out of a common *Salmo fario*. But for your paper you must first consult Darwin and Wallace, and you will understand that nothing that I have advised here is my own, but theirs, except the application of their theory to Algerian Larks and Irish trout. You should also get a little book of Vernon Wollaston's on the "Variation of Species," published a year or two ago by Van Voorst, the price of which is 5s. or so.*

Thirty years later, when writing the article for *Macmillan's Magazine*, from which the above extracts have been taken, Newton asked Tristram to lend him the last quoted letter and recalled the circumstances in which it had been written—

With many thanks I return the old letter you have sent me. The particular one, or more than one, that I wanted to see must be much earlier. I think you will find I mentioned the Darwin and Wallace paper to you as soon as I became acquainted with it, and that was in August, 1858, just after my return from Iceland, having taken Castle Eden on my way home. During our stay in Iceland Wolley and I had been continually discussing what should be held to constitute a "species" and how new "species" began. Of course, we came to no

* Letter to H. B. Tristram, August 24, 1858.

conclusion worth anything. Then when I was with you you showed me that marvellous collection of Larks and Chats, including so many "Desert forms," something like which (in the way of local variation) poor Baird had shown me the year before in Washington. I was wholly bewildered. Towards the end of the month appeared that part of the *Linnean Journal*, and behold all to me became as clear as possible! Such a revelation never was before nor will be, I think, again to me. I want to work all this into a paper I have to do for *Macmillan à propos* of Darwin's "Life and Letters"; but it has to be done AT ONCE, and therefore please let me have any letters you can find showing my frame of mind at that time, or at least before the publication of the "Origin," which was not until Nov. (or perhaps Dec.), 1859. To the best of my belief I took in the whole thing, details apart, from the first; but I find I cannot trust my memory, and the letters would be a great help to me.*

In November, 1859, the ever-celebrated "Origin of Species" was published. "Its contents I devoured and felt happier than ever, for now I began to see that Natural History possessed an interest far beyond that which it had entered into my mind to perceive." The various reviews of the book, most of them unfavourable to Darwin's views, were read by Newton, but produced little or no effect on him except to lower his estimate of the general run of critics. In the following year he was present at the memorable meeting of the British Association at Oxford—

In the Nat. Hist. Section we had another hot Darwinian debate. Mr. F. O. Morris had a paper on the list to be read "On the Permanence of Species," but in the committee we decided it should not be produced (he was not there himself), Babington treating us to some selections from it and remarking that it would, of course,

* Letter to H. B. Tristram, February 2, 1888.

appear in due course of time in the new series of the *Naturalist*.

The ball was opened by a paper containing diluted Owenism by Dr. Collingwood, followed by a long undiluted atheistical rigmarole by a Prof. Draper, a Yankee. After this a hot discussion took place. Huxley was called upon by Henslow to state his views at greater length, and this brought up the Bp. of Oxford, who made of course, a wonderfully good speech if the facts had been correct. Referring to what Huxley had said two days before, about after all its not signifying to him whether he was descended from a Gorilla or not, the Bp. chaffed him and asked whether he had a preference for the descent being on the father's or the mother's side? This gave Huxley the opportunity of saying that he would sooner claim kindred with an Ape than with a man like the Bp. who made so ill an use of his wonderful speaking powers to try and burke, by a display of authority, a free discussion on what was, or what was not, a matter of truth, and reminded him that on questions of physical science "authority" had always been bowled out by investigation, as witness astronomy and geology.

He then caught hold of the Bp.'s assertions and showed how contrary they were to facts, and how he knew nothing about what he had been discoursing on. A lot of other people afterwards spoke; Brodie on the medical view of the thing, which he did very temperately, declaring that at present it was impossible to say what was the truth; Lubbock, a son of Sir John's, who is a very clever young fellow, who took a decided Darwinian view, and Admiral FitzRoy, the man who commanded the *Beagle* and who had better have let it alone.

The feeling of the audience was much against the Bp., and Simpson, who had been very anti-Darwin, declared that if that was all that could be said in favour of the old idea, he was a convert. Not so Tristram, who waxed exceedingly wrath as the discussion went on, and declared himself more and more anti-Darwinian. The discussion

was adjourned until the Monday, but it was then thought by the leaders on both sides that it had better be dropped, and so the matter rests.

On the Sunday, at the University Church, Temple, the Master of Rugby, treated his audience to a sermon on Darwinism, in which he espoused Darwin's ideas fully! Nothing very particular occurred during the last few days, and I did a good deal of lionising. Oxford is no doubt finer than Cambridge, but not to that extent that her sons make out.*

Tristram had been the first zoologist of any note who, at the instance of Newton, publicly accepted the Darwinian views by his paper in the *Ibis* of October, 1859; his re-conversion at Oxford to the old faith, perhaps inspired by a feeling of loyalty to the Bishop, was a source of disappointment to Newton, who sought (unavailingly) to show him the error of his ways.

Elveden,

July 30, 1860.

MY DEAR TRISTRAM,

Much is to be conceded to a man afflicted with a Chancery suit, and when it is a friend who is so afflicted one's feelings are those of the deepest compassion. But compassion and friendship are strained to the utmost by your assertion that *Ph. colchicus* and *Ph. torquatus* are "generally acknowledged" to be local varieties. This assertion I deny *in totissimo*. You can only quote two authorities, who do "acknowledge" it. Cuvier I have not by me. MacGillivray is by no means unobjectionable, he only like a wise man goes upon what he has seen, and it is as plain as daylight that when he wrote he had never seen a *torquatus pur sang*. But I will generously come to your assistance and furnish you with another authority,—Samuel, by Divine Permission, one of the Quarterly Reviewers, Bp. of Oxford, a member of the Council of the Z.S.L., and Chancellor of the most noble

* Letter to Edward Newton, July 25, 1860.



Elliot & Fry

CANON H. B. TRISTRAM, F.R.S.



Bassano

THIRD BARON ELIBOLD

Order of the Garter. Read in the last number of that classical journal the original of the speech spoken to the British Asses—"locutus bos,"—not this time saponaceous * but downright "savage and tartarly." I am quite converted. I was (I confess it) in a "state of transition," but Darwinoid I might have remained for a whole geological æon. The Bishop's speech and article have caused me by a process of "natural selection" to become something better. I am developed into pure and unmitigated Darwinism.

It is a delightful reflexion, the amount of charity with which one can regard all one's fellow creatures. I am no better than the rest of the human race. It is true I do not kill and eat animals quite so nearly allied to oneself as do or did the Maoris, Caribs, or Ancient Britons. But the difference is only in degree. Oysters I swallow by the dozen, button mushrooms and strawberries by the score, and green peas in countless numbers. It is amazing how digestion is soothed by the placid thought that one might have easily sprung from another, and perhaps the elder, branch of the family, been hatched a turkey and stuffed with truffles by the hand of a chef, or even been the truffles oneself, instead of devouring the same *in persona*.

Serious as I am in all this, I am still more serious when I say that I wish you would come with me to Germany. It is never my way to travel expensively, and I am sure we should have lots to say to one another. I will start in ten days if you like.

Yours very truly,
ALFRED NEWTON.

To this Tristram replied—

July 31, 1860. . . . I quite agree with you that you are not fit to be trusted to go to Germany without a keeper. In fact, Hanwell is the only fit place for a Darwinian. How they can answer the *Quarterly* I cannot tell except by the argument of noise and sneers

* The reverend Prelate was irreverently nicknamed "Soapy Sam."

with which they tried to put down S. Oxon. and every one else who did not subscribe to the infallibility of the God Darwin and his prophet Huxley. Many sane men have their monomania. Let us hope yours is only a transitory one. The more I look into this renovation of Lamarck, the more I see it is one blind plunge into the gulph of atheism and the coarsest materialism. You cannot stop. It is like a Chancery suit.

The result of the Oxford meeting was of the nature of a drawn battle between the Darwinians and the anti-Darwinians. In the following year the British Association met at Manchester.

Though the ancient beliefs were not much troubled, it was for the last time that they could be said to prevail ; and thus I look upon our meeting in Manchester in 1861 as a crisis in the history of biology. All the same, the ancient beliefs were not allowed to pass wholly unchallenged ; and one thing is especially to be marked—they were challenged by one who was no naturalist at all, by one who was a severe thinker no less than an active worker ; one who was generally right in his logic, and never wrong in his instinct ; one who, though a politician, was invariably an honest man—I mean the late Professor Fawcett. On this occasion he brought the clearness of his mental vision to bear upon Mr. Darwin's theory, with the result that Mr. Darwin's method of investigation was shown to be strictly in accordance with the rules of deductive philosophy, and to throw light where all was dark before.*

The whole account you will see in the *Athenæum*. How that we fought over Darwinism and the Gorilla. It was, I think, the general impression that the former subject had gained many more adherents since the last meeting than any one had thought for. Even Owen is prepared "to take quite a different view of what are

* A. N., Presidential Address to the Biological Section of the British Association, Manchester, 1887.

called species from that which was generally held 20 years ago," and he admits that species may have had their origin in *second* causes : after which I think there is nothing worth squabbling about.

About the Gorilla, Owen, I do not think, gained any glory ; he asserted the old old story, about the Hippocampus minor, etc., as if it had never been questioned ; but it mightily comforted his hearers to know that there was all that difference between their brains and a Gorilla's. So also about his faith in Du Chaillu, I cannot help thinking that he does not believe in him, and only keeps on because he has never yet confessed himself wrong about anything.*

The meeting at Cambridge in 1862 witnessed the last determined resistance of the anti-Darwinians and their ultimate defeat.

It was a good meeting, all the better for not being too crowded. There was a grand kick-up again between Owen and Huxley, the former struggling against *facts* with a devotion worthy of a better cause. The latter now takes it easy and laughs over it all, but Flower and Rolleston are too savage. No doubt it is very irritating when Owen will not take the slightest notice of all they have done and proved, and Owen does it all in such a happy manner, that he carries almost conviction from those who *know* how utterly wrong as to facts he is.

I had meant to have had an "Ibis" dinner, but the last was the only evening we could have it, and then a lot of others wanted to dine together, so it ended in establishing a new "Club for Promoting Common Honesty" and we had a feed at the "Lion" under the presidency of Huxley, with Kingsley as *vice*. Ibises are to be *ex-officio* members ! We had some very good speechifying from both chairmen and others. This club, I believe, was founded with one rule only, and that was that any one drinking Sclater's health was to be expelled (this was Sclater's stipulation

* Letter to Edward Newton, September 25, 1861.

in his nervous juxta-matrimonial state, and the only condition under which he would allow the dinner to take place), so that as soon as Slater left, which he did early, I proposed his health and every one drank it ; whereby it is difficult to say whether the association did not thereupon dissolve itself ! ” *

Thenceforward Newton never wavered in his allegiance to Darwin's views, and very soon (1863) published in the *Proceedings of the Zoological Society* an interesting confirmation and illustration of Darwin's remarks on the way in which seeds may be dispersed by birds, describing the case of a partridge which had been found with its foot firmly imbedded in a lump of hardened earth. When the “ Animals and Plants under Domestication ” was published in 1868, he wrote in the *Record of Zoological Literature* a detailed and very appreciative notice of it, dealing more particularly with the Pigeons, which was acknowledged most cordially by Mr. Darwin.

Down, Beckenham, Kent,
Feb. 9, 1870.

DEAR NEWTON,

I suppose it would be universally held extremely wrong for a defendant to write to a Judge to express his satisfaction at a judgment in his favour ; and yet I am going thus to act. I have just read what you have said in the *Record* about my Pigeon chapters, and it has gratified me beyond measure. I have sometimes felt a little disappointed that the labour of so many years seemed to be almost thrown away, for you are the first man, capable of forming a judgment (excepting partly Quatrefages) who seems to have thought anything of this part of my work. The amount of labour, correspondence, and care, which the subject cost me, is more than you could well suppose. I thought the article in the *Athenæum*, written, I have no doubt, by Owen, was very unjust ; but now I feel amply repaid, and I cordially

* Letter to Edward Newton, October 8, 1862.

thank you for your sympathy and too warm praise. What labour you have bestowed on your part of the *Record*! I ought to be ashamed to speak of my amount of work.

I thoroughly enjoyed the Sunday which you and the others spent here, and I remain, dear Newton,

Yours very sincerely,

CH. DARWIN.

The *Record of Zoological Literature* (the name was changed with the seventh volume to the *Zoological Record*) was started in 1864 by the late Dr. Albert Günther, who edited the first six volumes. Newton was from the beginning the principal contributor of details of ornithological literature, and during three years—1871 to 1873—he was the editor. The *Record* was so necessary to English-speaking zoologists that when it proved a financial failure as far as the publisher was concerned, the Zoological Record Association was constituted, which bore the expenses, until the Zoological Society took over the publication of the work. Recently it was united with the “Royal Society’s International Catalogue,” and it still appears annually as a separate volume of that Catalogue, retaining its own title. Newton was so much interested in its continuance that he declined to receive any remuneration for his contributions or for the three years of his editorship.

In later life, with characteristic broadness of mind, he appreciated and approved of the principles of Mendelism, though he never professed to follow it in detail. “While the early stages are easy enough to understand, the later steps are just the reverse, and I confess I cannot follow all the steps—nevertheless, I believe in its universal truth.”

One of the most remarkable things about Mendelism is that it tends to show the essentially identical nature of

animal and vegetable life. Experiments are much more easily carried on (and that on a very large scale) with plants than with animals, and it is from plants that what are called "Laws" are most easily deduced; but when you can make what is really the same experiment on animals, you find the results are similar. In one form or another this has now been tried on Rabbits, Mice of fancy colours, Canary-birds, Pigeons, domestic Fowls, and some other things, and I am assured that the exceptions to the Mendelian principle proving true are exceedingly rare. Bateson and Punnett are trying to find out whether these rare exceptions may not be the result of some other "law" which we don't at present know, and it seems to me quite possible that they (B. & P.) will succeed. There are occasional interruptions observable in plants, and the cause of them is also under observation.

Years ago, when I first began lecturing on Evolution, I used to point out that so far as we could judge the phenomena of Hybridisation were precisely similar in animals and in plants, so far as could be tested. Some crosses that were easily made (horse and ass) were absolutely sterile; others obtained with difficulty, or at least seldom (bovines) were perfectly fertile; and so on with other properties.*

For many years Newton was a regular attendant at the meetings of the British Association, of which he was placed on the General Committee in 1860. He was for some years Chairman of the Close-time Committee and of the Migration of Birds Committee. At different times he was Secretary, Vice-President, and President, of the Section of Zoology and Botany. The practice of sometimes holding the meetings in the Overseas Dominions was established too late in his lifetime for him to take advantage of it, and he particularly regretted being unable to join the party which visited South Africa in 1905.

* Letter to J. A. Harvie-Brown, July 25, 1906.

Would it had all been ten years ago, and then assuredly I should have been of the party! But my travelling days are over. A curious question has occurred to me: Will the influx of all these British Asses (——) make up for the loss of the vanished Quagga?

Every one I have met is charmed with the whole business, though I have heard of one man who got tired of it. He is a divine and felt bound, I suppose, to take a gloomy view of things. During his absence his congregation prayed for him earnestly in a combination from the form to be used at sea and that of the visitation of the sick,—he is a bad sailor,—and I am told the result was ludicrous! *

In 1875 Newton was a member of the Council of the British Association, and he took, as always, much trouble in seeking interesting papers for the Biological Section. Writing to Mrs. Strickland (June 13, 1876) he drew up the following imaginary programme for the Zoological Section at the Bristol meeting:—

Your countryman Mr. Alston is going to be Zoological Secretary to Section D this year, and I am very glad of it, for he will work it up well. In fact, his activity is so great that I am able already to send you a list of some of the proposed papers. *If* he gets them, we shall have a crowd.

Zoological Papers.

- 1 *The President's Address.* On the Manufacture of Genera and Species. Eloge of the late Dr. Gray.
- 2 *Mr. F. Buckland.* On Fishery Wares and Fishery Weirs,¹ illustrated by models of machinery and implements.

The title of this paper, if objected to as belonging rather to Section A, may be changed at the last moment, the material will remain the same.

- 3 *Dr. Carpenter.* On the Bore of the Bristol Channel in relation to Deep Sea Soundings carried on by the author (including the $n + 1$ th chapter of an unpublished autobiography).

* Letter to Col. H. W. Feilden, C.B., October 31, 1905.

- 4 *Miss Lydia Becker.* On some Unnoticed Points in the Theory of Sexual Selection as applied to Entozoa.
- { 5 *Prof. Mivart.* On Dimorphism in the Common Frog.
- { 6 *Prof. Huxley.* On Man as an Automaton.
- { 7 *Sir J. Lubbock.* On the Inability of Bees to avail themselves of Bank Holidays.
- { 8 *Cardinal Manning.* On Certain Fallacies in Our Estimate of the Intelligence of the Lower Animals.
- 9 *Captain Lawson.** Exhibition of Zoological Specimens collected in New Guinea.
- 10 *Dr. Quackenbosh* (of Chicago). On the Colorado Beetle.²

² Living examples of this destructive animal will be exhibited in the adjoining room in charge of the Quarantine officers of the Port of Bristol.

N.B.—The papers bracketed will be taken together.

Forty years ago, not less than at the present time, the members of the Association attended feasts and functions in the various towns they visited. An amusing incident occurred at the opening of the meeting at Brighton—

The funniest thing I witnessed was Sclater being taken for Louis Napoleon the first night and received by the Mayor, gold chain and all, with “How many seats does your Imperial Majesty want?” His worship, it should be said, had dined! Sclater with great presence of mind presented Tristram as the Emperor, whereon the Mayor got furious and turned to me with “Who are these persons?” It should be added that we drove up in the Rowley carriage, rather a swell affair, to the platform entrance, and young Rowley who had gone on first, when the carriage stopped, exclaimed, “There they are,” meaning us; but the Mayor, etc., thinking “*they*” could only mean the illustrious exiles, hurried out to meet us, and altogether it was exceedingly comical.

. In the 'seventies Newton was a regular attendant

* Capt. J. A. Lawson, “Wanderings in New Guinea,” 1875. Claimed to have climbed in a few hours to 25,314 ft. of “Mt. Hercules,” 32,783 ft. He met herds of wild oxen, troops of monkeys, and tigers of great size.

at the dinner of the Red Lions, a Society of which Dr. T. G. Bonney, F.R.S., writes the following account:—

THE RED LIONS.

The Red Lions are a sort of Society or Club, composed of members of the British Association. Their object is convivial, and they may be said to sleep for all but one evening in the year, when, during the Meeting of the Association, they assemble for dinner. The arrangements for this are made by two members, called Jackals. How these are elected (I think they continue in office unless prevented from coming to a Meeting); what body elect a "new Lion" (who, I think, unless a permanent official of the Association, goes through a year of probation—when he is called a cub), I do not know. I do not remember to have seen any copy of rules and they may be only traditional, but rules there are. The Chairman (how elected I do not know) is generally one of the senior members of the Association, known to be humorous and ready of speech—like the late Sir F. Bramwell or Sir J. Evans. He is called the King Lion. A card is sent by the Jackals to each member (Lion A) to say that "Bones will be provided at such a place and hour" * It is understood that each Lion will be as humorous as in him lies and abstain from anything like serious talk with his neighbour. After dinner comic songs are sung, ludicrous speeches delivered, burlesque lectures or papers given, which are often most amusing. At York, I remember—in 1881—the late Roberts Austen gave a parody of Prof. Tyndall, and his brother Jackal, Atcheson (afterwards Secretary) also delivered a laughable piece of nonsense. When dinner is announced, the "Lions" roar approvingly as they go into the room; and shake the tails of their coats—supposed to be wagging their tails. If the dinner is delayed or anything is not to their liking they growl; if they approve, they roar and

* A few guests, usually gentlemen from the place of meeting, specially connected with the Association, are invited.

agitate their coat-tails. They address the Chair as "Your Majesty." Ordinary applause is not permissible. Philosophy, in short, on that evening, plays the fool, and often does it very cleverly and wittily.

At the Red Lion dinner held during the Glasgow meeting in 1876 the Lions' humour took the form of telegraphic greetings supposed to have been sent to the Den by various eminent personages.

Telegrams received and read to the Den by the Lion King, Glasgow, Sept. 11, 1876 :—

1.

Champs Elysées,
cet onzième Septembre.

La France qui a tant souffert sous le drapeau rouge ne craint pas les Lions de ce couleur. Je les embrasse. Vive la France ! Vive l'Association britannique !! Vivent la solidarité et la liquidarité des peuples !!!

MACMAHON,

Maréchal Président.

2.

(Forwarded by the kindness of the Editor of the *D.T.*)

New York Herald Office,

Central Africa.

Latitude and Longitude mixed.

June 25, 1876.

(Received at Alexandria, September 10, 9.50 p.m.)

Ascended twin peaks over 50,000 feet. Named them Mounts Herald and Telegraph. Set up columns of each paper on both. Stars and Stripes float on one, Union Jack on other. Niggers nasty but don't relish rifles. Shooting first class lately. Quite a store of explosives left, but whisky giving out, having met missionaries. Make most of Cameron while you can as I will be back soon.

H. M. STANLEY.

3.

Varzin den 11 ten, September, 1876.

Mein allergnädigster Herr und Gebieter, der deutsche Kaiser sendet seinem Königlichen Bruder herzlichen

Gruss, und er bittet den Himmel den britischen Verein vor dem Jesuiten Häckel zu beschützen. Darwinismus soll nicht in Europa existiren. Drei Armee Corps werden mobilisirt.

BISMARCK.

4.

Romae, Palatio Vaticano, hora quindecima diei
Festæ Sci. Mungonis, Anno trigesimo primo
pontificatus nostri.

Salus et benedictio apostolica Leonibus Rubris. Rubri olim nosmet, cor nostri jam erubescit. Dormit Antonellius. Plenitudine infallibilitatis nostri certioorem facimus fidelem Haeckelium felicitatis sempiternæ. Illum virum illustrem in gastræo nostro nominavimus "Ecclesiæ Propugnator," et, Bismarckio nonobstante, commendavimus eum Collegio Sacrosancto in loco nostro. Non sunt approbata a sede apostolica Mivartii dogmata-Motu proprio.

PIUS, P.P.

(No Latin dictionary or grammar being found in the Den, the foregoing message was unintelligible to the assembled Lions, but the King announced that he had had it repeated to Professor Jebb, and the following was soon after read as the answer received from that eminent scholar.)

Translation.

Palace of the Vatican, Rome, 15 o'clock. Feast of Saint Mungo, in the XXXIst year of our Pontificate.

Health and Apostolic benediction to the Red Lions. Once Red Ourselves, Our heart still warms to the colour. Antonelli is at his siesta. Empowered by Our Infallibility we assure the faithful Haeckel of eternal felicity. Henceforth in our bosom we name him "Champion of the Church," and notwithstanding Bismarck commend him to the Sacred College as Our successor. The doctrines of Mivart are not yet approved by the Holy See. Our bowels are rather better.

PIUS.

5.

August 17, 1876,

Lat. 90° N. common meridian.

(Received at Disco Sept. 9. Sent out at 3.43 p.m. by
express Kajack. Forwarded by command of the
Secretary of the Admiralty.)

North Pole reached this morning. Not so high as St. Rollox's. Scotchman at a good salary found in charge, as expected. His name is Thomson. Bears becoming troublesome, buns being exhausted. Weather sultry. Refrigerators have proved most useful. Start South to-morrow, meridian of route as yet undecided.

G. S. NARES, Capt., R.N.

H.M.S. *Alert*.

6.

Executive Mansion, Washington,

Sept. 11, 1876.

American eagle now waving centennial wings greets Red Lion. How many of our scientists will we extradit in swap for Huxley, who is having quite a nice time on this side and concludes to stop? Would M'Kendrick like Sitting Bull for vivisection? Wire reply.

U. S. GRANT.

7.

Oneida Creek,

Sept. 10, 1876.

Marsh's Brontotherium too much for me. Have come here to regenerate. Very comfortable. Don't know when I shall return. An opening for Carpenter as Noyes is effete. Hepworth not thought much of by sisterhood.

T. H. HUXLEY.

8.

Board of Foreign Relations, Pekin, 11th day of
Moon Hien Fung (Month of Universal Abund-
ance, i.e. Harvest Moon) Year of Confusion,
4065.

Blother of Sun and Moon chinchin Led Lion King. Blitish Ass pigeon game not understand. Too muchee plenty talkee-talkee not enough washee-washee. Nares

big fool go North Pole, muchee ice, starvee-starvee.
Thomson wise man go home chow-chow quack-quack
and bow-bow with Led Lions. Glosvenor pigeon no go.
Ahsin too muchee savvy. Lice clop vely fine.

LI.*

Towards the end of 1865 it was decided by the University of Cambridge that the teaching of Comparative Anatomy, which had hitherto been a part of the duty of the Professor of Anatomy, should be removed from his school and that a Professorship of Zoology and Comparative Anatomy should be founded. The election took place on March 1, 1866, and there were two candidates, W. H. D. Drosier, M.D., of Caius, and Alfred Newton, M.A., of Magdalene. Drosier had been twenty-second Wrangler in 1839 and a Senior Fellow of his College. He was a great sportsman, and is described as "a man of much ingenuity and wide knowledge of anatomy and natural history." He was, moreover, a man of considerable property, and was very popular in the University. Newton was armed with a powerful array of testimonials from Owen, Gould, Gray, Murchison, Selater, and others. It was the bad custom in those days for elections to be made by the Senate, and candidates were required to canvass for votes, as in a parliamentary election. It often happened that electors gave their vote to a friend, although they might know that he was not the best candidate for the post.

Magd. Coll.,
March 1, 1866.

MY DEAR TRISTRAM,

I doubt if it had been Horace's luck to stand a contested election. It would be difficult for any one then to keep the *aequam mentem*, and I admit *I* can't.

* The authorship of these "telegrams" is not certain. They were found among Newton's papers, written in his own handwriting, so it is probable that some of them, at all events, were written by him.

Things, however, are looking somewhat brighter. Except Humphry, the Professor (elect) of Anatomy, I have all the medicos in the place *actively* against me. They consider that it is profanity for a layman to be a dealer in bones. We look forward to seeing Clayton's white teeth grinning hideously to-morrow, and it is too probable that he will bring up a curate of his who has a vote. . . . I have been interrupted in this by a committee meeting, and my head is full of nothing but pairs, shufflers, and the like. The results we have come to are these—

D., 86 good + 8 <i>probable</i>	= 94
A. N., 101 good + 16 <i>possible</i> (shufflers)	= 117
Absent or not voting	52
Remains of doubtful	16
Total Constituency	279

I would *willingly* exchange my 16 possibles for D.'s 8 probables.

By this time to-morrow I shall be a man or a mouse.

Yours ever,

ALFRED NEWTON.

March 1, 1866

Close of Poll:—

A. N. 110—D. 82.

Laus Deo !

On the same day Charles Kingsley, whose voting on this occasion had been directed by his heart rather than by his head, wrote—

March 1, 1866.

MY DEAR NEWTON,

Now that all is over, I must sincerely congratulate you, though I would not have you (you will understand why) tell my poor dear old friend Drosier that I have done so.

You have fairly deserved this post, in the only true sense of desert, earning, and thereby meriting, and I know you well enough to be as sure as those who supported you, that it will be the opening of a career

honourable to yourself and to the University. The way in which you took my voting against you I shall always consider as a personal obligation to myself.

Believe me,

Ever yours faithfully,

C. KINGSLEY.

CHAPTER IX

PROTECTION OF BIRDS

NEWTON had only been Professor at Cambridge for two years when he made his first appearance on a more public platform. As Vice-President of the Section of Zoology and Botany, at the British Association meeting held at Norwich in 1868, he read a paper entitled, "The Zoological Aspect of Game Laws," in which he clearly showed that the wholesale slaughter of many of our birds during the breeding season would shortly result in their extinction, unless laws were passed to give them protection. He began by condemning the exaggerated and over-coloured statements of those well-intentioned persons who write to the newspapers on the subject of "bird murder," and argued that "with some rare exceptions our wild animals have no great reason to be grateful to their ordinary defenders in the newspapers." Though some mischief was undoubtedly done by enthusiastic letter-writers, he admitted that attention had been drawn to the question, and that there was a growing desire on the part of the public to see effectual protection extended to many of our wild animals.

By far the most complete protection is that afforded by public opinion. Of this we have the strongest possible instance in the case of the Fox, in most parts of these islands. Not much more than a century ago the British farmer was only induced to permit the galloping of horse and hounds across his seeds, or winter corn, by the thought that they were doing him a great service by ridding him of a pestilent marauder, and he would hear

with grim satisfaction that the scourge of his wife's hen-roost had been run into ; or he would willingly at a vestry meeting pass the churchwardens' accounts giving rewards for the destruction of a vixen with her cubs, among other so-called "vermin." Nowadays, as we know, the British farmer is generally in the "first flight" of the horsemen, and the Fox has no friend more staunch. Thus it will be seen that an entire change of feeling has been wrought with respect to this species, and a change of the most effectual kind."

After discussing the causes of the extinction in this country of the Bustard and the Large Copper Butterfly, and mentioning the beneficial results of legislation with regard to Salmon, he pleaded for an effectual measure of protection of Birds of Prey and Sea-fowl. With regard to the former he convinced his audience that the decrease of Hawks has nothing to do with the abundance of game, and that the presence of Owls is absolutely beneficial.

Now for Sea-fowl—and here I must plead guilty to the charge (if it be a charge) of being open to a little bit of sentiment. At the present time I believe there is no class of animals so cruelly persecuted as the sea-fowl which throng to certain portions of our coast in the breeding season. At other times of the year they can take good care of themselves, as every gunner on the coast knows ; but in the breeding season, in fulfilment of the high command to "increase and multiply" they cast off their suspicions and wary habits and come to our shores. No one that I have ever heard of has complained of them as injurious in any way. Some few, as the "Scoulton Peewits," settle far inland, and their usefulness as they follow the plough is everywhere recognised. But of the rest—I never heard the Willocks or Kittiwakes of the Yorkshire coast accused of raising the price of herrings, sprats, and oysters ! I think we may fairly assume that they are innocuous in every respect. But how do we treat them ? Excursion trains run to convey

the so-called "sportsmen" of London and Lancashire to the Isle of Wight and Flamborough Head, where one of the amusements held out is the shooting of these harmless birds. But it is not merely the bird that is shot that perishes—difficult as it is to say where cruelty begins or ends—that alone would not be cruelty in my opinion. The bird that is shot is a parent—it has its young at home waiting for the food it is bringing far away from the Dogger Bank or the Chops of the Channel—we take advantage of its most sacred instincts to waylay it, and in depriving the parent of life, we doom the helpless offspring to the most miserable of deaths, that by hunger. If this is not cruelty, what is? Can men blaze away hour after hour at these wretched inoffensive birds and call it "Sport" without being morally the worse for it? We thank God that we are not as Spaniards are, who gloat over the brutalities of a bull-fight. Why, here in dozens of places around our own coasts, we have annually an amount of agony inflicted on thousands of our fellow-creatures, to which the torture of a dozen horses and bulls in a ring are as nothing. Surely I may be pardoned if I indulge in a bit of sentiment here? I began by deprecating over-coloured statements, or I might dwell on this ghastly picture much longer, but there is one painful feature which it is said has been lately superadded. The modern fashion of ladies wearing plumes in their hats is said to give an impetus to the slaughter. This rests on good authority. Mr. Cordeaux writes of the Kittiwake at Flamborough (*Zoologist*, p. 1009): "This graceful and trustful bird is threatened with speedy extinction at this famous breeding-place; thousands have been shot in the last two years to supply the 'plume trade.' The London and provincial dealers now give one shilling per head for every White Gull forwarded; and the slaughter of these poor birds during the season (the *breeding* season, remember) affords almost constant and profitable employment to three or four guns. One man, a recent arrival at Flamborough, boasted to me that he had in one year killed, with his

own gun, four thousand of these gulls ; and I was told that another of these sea-fowl shooters had an order from a London house for ten thousand." No wonder the Kittiwakes are rapidly disappearing. There has this year been a marked diminution of the great breeding colony in the Speeton Cliffs. Fair and innocent as the snowy plumes may appear in a lady's hat, I must tell the wearer the truth—"She bears the murderer's brand on her forehead."

Now that a stop should be put to this wanton and atrocious destruction of a species, aggravated as it is by circumstances of peculiar cruelty, I think none of my audience will deny. The only question is how it should be done. As I have said before, no doubt public opinion would be the most effectual check ; but on the other hand, I fear lest by the time we can hope to influence public opinion to such a degree that Laricide shall be regarded in the same light as Vulpicide, there will be no more Kittiwakes on our coast to protect. It seems to me, after due reflection, that legislative interference is absolutely required, for we can hope to excite the interest of Parliament in the matter sooner than we can that of the nation at large. And this brings me to the special object of this paper. In many countries, as you are aware, there is a "close time" proclaimed by the local authorities, during which time the mere act of carrying a gun is an offence against the law. I need scarcely say that this "close time" extends over the breeding season.

After a brief description of the "close time" orders in force in certain foreign countries and British colonies, he concluded his paper by an expression of hope that a "close time" would soon be established in this country. Although there had been discussions about the destruction of birds at the meeting of the British Association in the previous year at Dundee, the meeting at Norwich was the first occasion on which the question of "close time" by legislation had been publicly advocated by a responsible person. Newton's paper was widely

commented on by the journals at the time, and it made a profound impression on the public mind. In the following year (1869) the Sea Birds' Protection Bill was passed by Parliament. Thus it may be said that Newton's paper at Norwich was the first stone in the foundation of the many Wild Birds' Protection Acts which have subsequently been passed.

Shortly afterwards the British Association appointed a Committee "for the purpose of investigating the desirability of establishing 'a close time' for the preservation of indigenous animals." This Committee, of which Newton was a member and over which he presided for many years, took an active part in promoting the earlier Bills for the protection of birds, and the members, of whom the most prominent were H. B. Tristram, J. E. Harting, and Newton, were frequently called upon to give evidence and advice to the Committees of the House of Commons. In 1872 a bill for the protection of "Wild-fowl" was brought into Parliament at the instance of the Close-time Committee, and so many untoward changes and chances befell it before it became an Act that Newton wrote of it—

"Save me from my foolish friends" ought to be a stave in the spring-song of each fowl of the air from the Nightingale which warbleth in darkness to the Dotterel which basketh at noonday. The Bill, as at first proposed, was framed entirely on the Sea-birds' Preservation Act, which became law in 1869 and had already proved to be a successful measure. The great feature of it was its being directed to a definite point—the preservation during the breeding season of those birds which, beyond all others, were subjected to cruel persecution at that time of year—thousands of Wild Ducks, Plovers, and Snipes, being constantly to be found in the poulterers' shops throughout the spring months, not only killed while they are breeding, but killed, it is not too much to

say, because they are breeding, since during that season they put off much of their natural shyness and fall easy victims to the professional gunners. Furthermore, all who really know anything of birds know that it is just those kinds which are rapidly diminishing in number—some of them, which in bygone days were most abundant, are now only seen as stray visitors. There is, for example, the Avocet, the disappearance of which can be plainly traced to its destruction by gunners.

There can be no doubt that in its original form the Bill, as suggested by the Close-time Committee was a practicable scheme, and which would have gone far towards the protection of British wild-fowl. Unfortunately, in an almost deserted House, Mr. Auberon Herbert, on the motion for going into Committee, succeeded in carrying by a majority of 20 to 15, an "instruction" to extend the protection accorded under the Bill to "Wild-fowl" to other wild birds, and thereupon the spirit of the Bill was entirely changed, and it was converted from the reasonable measure originally contemplated into one of indefinite and general scope. It was at once evident that in its new shape it would be impracticable, and notice was speedily given for its rejection. Finally, it was referred to a Select Committee, by whom its sweeping clauses were limited by the introduction of schedules of certain birds to be protected, while the penalties were diminished. No ornithologist whose opinion could carry the slightest weight appears to have been consulted, and no ornithologist was among the twenty-three members forming the Select Committee.

Mr. Herbert, on the 21st of June last, laid a cuckoo's egg in the carefully-built nest of the British Association Committee, and the produce is a useless monster—the wonder alike of the learned and the layman, and an awful warning as an example of amateur legislation.*

* Letter to Edward Newton, July 10, 1872.

I am in a state of great uncertainty as to the Bill, and am as often as not inclined to hope it may fail to pass.

The inclusion of the Owl is no doubt a gain in itself, but considering the cost of it I question it being worth the price. Owls are and were in no danger of extermination, but gamekeepers' backs will be put up by the Bill if it passes, and they will make a point of killing them now with all the vigour possible. It would have been better to have let public opinion gradually come round as it was coming round as to the utility of these and other birds. All the rest of the additions, saving perhaps the Kingfisher and Bearded Titmouse, are utterly useless, for none of them are in any danger of extermination, as are the "Wild-fowl" pure and simple. The penalty *with costs* would have been so plainly inordinate for killing a Robin Redbreast or a Hedge Sparrow that they were compelled to reduce it to one-fourth the limit (5s. instead of £1) and make it *include costs*. It will now be scarcely worth any one's while to put the Act in force, and in the case of many Wild-fowl the gunner will get more for his bird than will repay him for all trouble and expense, even if prosecuted and convicted. All this we owe to the fools of enthusiasts. The *Wild-Fowl* Bill, followed next year by one for the regulation of birdcatchers would have done far more good.*

In spite of the protests of Newton and other members of the Close-time Committee, the Bill became law, and so far as the Wild-fowl, which it was primarily designed to protect, were concerned, it remained to all intents and purposes a dead letter.

The penalties, which were not at all out of proportion to the marketable value of Wild-fowl out of season by a professed gunner, were reduced to meet the case of a child who might thoughtlessly throw a stone at a Robin, and indeed, for the first offence no penalty was to be inflicted—but the culprit only cautioned and dismissed

* Letter to H. B. Tristram, July 29, 1872.

on payment of costs. The Act therefore has been perfectly useless—as the real friends of bird protection foresaw it would—in regard to Wild-fowl, and their persecution goes on as actively as ever. For the last two years the shops have been full of Plovers, Snipes, Wild Ducks, etc., long after the breeding season, *i.e.* the so-called “Close-time,” began, just as though no Act existed. I need scarcely point out to you that no birds are decreasing more rapidly in this country than Wild-fowl of all kinds, and this is quite as much owing to the way in which they are shot down during the breeding season, when they become comparatively tame, as to drainage and improved cultivation.*

The most important of the Wild Birds' Protection Acts was that of 1880, which definitely established the principle of a close time for all wild birds between March 1 and August 1, with the imposition of a penalty for any infringement of that regulation, and a more considerable penalty in the case of certain birds, which were specially named in the schedule. Unfortunately the members of the Houses of Parliament did not always agree as to what birds should be included in the schedule with the members of the “Close-time” Committee, who had been chiefly instrumental in promoting the Bill. One of the disputed birds was the Skua, which was not considered by the Lords to be worthy of special protection; it may be said that both species were eventually included in the schedule.

July 26, 1880.

DEAR WALSHINGHAM,

I am very sorry that the Duke of Argyll should object to any protection being accorded to Skuas. They are, of course, predatory, but I utterly deny their being “mischievous and destructive.” We have two species which breed in Britain; the commoner and smaller

* A.N. to Lord Walsingham, January 27, 1875.

species in Pennant's time bred in many of the Hebrides, Islay, Jura and Rum. It has been for some years quite extinct in Jura, and the last met in Rum that I have any record of was in 1837. There are still stations on both the Uists, Lewis, and some others of the Hebrides. A few pairs breed in parts of Sutherland and Caithness, and again in Orkney and Shetland ; but nowhere is the species sufficiently abundant to do any *real* harm, while the decrease within the past century of its breeding quarters shows that it is a species which will soon disappear, if subjected to the same conditions as formerly. Its extirpation as a British species would be a positive loss, not only to our Fauna, but it so happens that to a scientific zoologist it is one of the most interesting species we have, because it is, I believe, the only one of our birds which commonly exhibits "dimorphism" in its plumage, and ornithologists have been at their wits' end to explain the why and the wherefore of this peculiarity. They would lament its extinction as a very great loss.

Of the other species, the Great Skua, much more is to be said. I believe it now breeds only on the most northern of the Shetland Islands, and that it does so is due to the influence of three successive generations of the Edmunston family. Their conduct in this respect has been for upwards of 50 years held up to, and by, ornithologists as a most laudable example, and in my opinion nothing could be more detrimental to the hopes of those who desire to preserve to posterity our more interesting birds than the striking of this bird's name out of the schedule. I have been always looking forward to a fitting opportunity when I could get the Zoological Society to award its silver medal to the head of the Edmunston family as an acknowledgment of their meritorious conduct in keeping this species a living member of the British Fauna ; for without them it would long since have "gone under." But I will admit that the Edmunston family may have (in the beginning) preserved this bird from motives of personal advantage ; still their feelings are shared by others who inhabit the

same island, and I enclose an extract from a paper written many years since, to show what are the feelings of the people of Shetland on the subject. That this feeling exists now I have the testimony of Mr. Howard Saunders who was in Unst last summer, and to allow the Great Skua to be exterminated there would in these days be an outrage.

Yours very truly,
ALFRED NEWTON.

Extract from Mr. R. Drosier's "Account of an Ornithological Visit to Shetland and Orkney," *Magazine of Nat. Hist.*, vol. iii. p. 322 :—

The Skua Gull, called by the natives "Bonxie," is held and cherished by them with the greatest veneration and kindness, and nothing hurts their feelings more than to see the death of their favourite bird. I was particularly requested by two or three elderly natives, to spare this bird : as to the Skua were almost entirely trusted the care and protection of their lambs, during the summer months, that are always allowed to wander unrestrained over the island. These birds possess an inveterate dislike against the Eagle and Raven ; for no sooner does the broad and rounded wing of the Eagle appear emerging from his rocky habitation amid the cliffs, than the Skua descends upon him from the tops of the mountains, in bodies of 3 or 4, and never fail to force the eagle to a precipitate retreat. The natives always reward this service by casting from their boats the refuse portion of the fresh-caught fish, which he seizes with greedy avidity, snatching it almost from the hands of the fishermen.

There was a strongly supported amendment, which was eventually dropped, to make bird's-nesting an offence under the Act of 1880. About this Newton wrote to Lord Walsingham (July 18, 1880) :—

I do hope you will resist any attempt made by

sentimental people to make egg-taking an offence. If it were so there would be endless trouble—parents wouldn't pay the fines for their children, and the gaols would be full of boys.

Though the "sentimental people" did not succeed in their endeavours, the poulterers were more persistent, and in 1881 an amending Act greatly facilitated the importation of game and wild-fowl killed abroad.

The question of protecting birds' eggs was several times seriously considered by the Close-time Committee, and after that Committee ceased to exist the British Association appointed a Committee in 1891 and 1892 "to consider proposals for the legislative Protection of Wild Birds' Eggs." In 1893 a Bill was introduced into Parliament by Sir Herbert Maxwell, Bart., the aim of which was to enable County Councils to prohibit the taking of the eggs of such species of birds as it might seem desirable to name in different localities. The Bill passed the House of Commons, then it was amended in the House of Lords, chiefly at the instance of Lord Walsingham, prompted by Newton, then it was reconstructed by the Standing Committee and finally dropped because in its altered form it was not acceptable to its original promoter.

After its introduction notes on the Bill were written by Newton and privately circulated among members of both Houses. These notes * so clearly define his views on the important question of egg-collecting that no apology is needed for repeating extracts from them here.

It undoubtedly appears that it might be advisable to some extent to give effect to the desire expressed by many people, that some restrictions of what, for brevity's sake,

* Afterwards published in "The Annals of Scottish Natural History," April, 1894.

may be called "egging," should be enacted. The question then arises of what nature these restrictions should be. It seems very simple to those who have not fully considered it; but those who have seriously reflected upon it find it beset by many complications, and very difficult of solution. Most people, however, will admit that birds' eggs are much more exposed to depredation in certain places than in others, and this only at certain times.

Proof of this, if wanted, is supplied by the fact that in several parts of England private persons have formed small local associations to pay watchers, during a few weeks in the breeding time, for the protection of the birds frequenting particular localities—such as the Farne Islands, the sandhills near Wells in Norfolk, Breydon Water between Norfolk and Suffolk—which I mention because I myself subscribe to them. It may be that there are others.

To me one way of treating the question seems preferable to any other that has been suggested, and, indeed, after many years' consideration the only one practicable. This is to give the local authority (County Council or Justices in Quarter Sessions), subject to the assent of a central authority, power to prohibit all egging in certain definite places for a certain definite time. Such prohibition would probably be confined to comparatively small bounds—an island, a sea-beach, cliffs, or sandhills adjoining the shore, a heath, common, wood or forest, a public park, a mere or broad with the surrounding land, or so on, and would be locally known, so that the risk of boys being sent to gaol would be greatly lessened. Moreover, all egging being prohibited within the prescribed limits during the inhibited period there would be no need of attempting to prove that an egg found in the captor's possession was that of a protected species, such proof being in many, if not in most cases, as every practical ornithologist knows, absolutely impossible, if the defendant were advised by an ingenious counsel; for, in the greater number of cases, an egg could not be

proved to be that of any particular kind of bird, unless a witness could swear that he saw the bird lay it.

Egging may be considered to be carried on chiefly by three classes of persons :—

First, there is the man who for years has gathered the eggs of Plovers and certain marsh- or sea-birds for edible purposes, whereby, if he be an adept, he is able by their sale in the open market to add considerably to his own livelihood. This man, I believe, would rejoice at a “close-time” being enforced, after the first, second, or third laying of the birds, for the places where he plies his calling, so as to allow the hatching of the second, third, or fourth laying (as the case may be)—and most of the birds with which he is concerned lay twice, thrice, or four times in the season—and so ensure the unimpaired continuation of the breed.

Secondly, there is the ordinary schoolboy, whose depredations are at times extremely annoying to the owners or occupiers of gardens, plantations, and the like, but declared by the “Close-time” Committee to have little or no effect in reducing the number of birds in general, though their continuance year after year in particular districts may locally produce that effect. Now it is to be remarked that the ordinary schoolboy, as a rule, is quite indifferent as to the kind of bird whose nest he may rob, and any restriction as to protected or unprotected species would be wholly lost upon him. To this rule there are some exceptions, and the exceptions often grow up to be fair naturalists.

Thirdly, there is the “collector,” who is only sometimes a naturalist in the true sense of the word. When he is one, he may be safely trusted to do no harm ; but more often he is a dealer, and his influence on the whole is destructive to the less common kinds of birds, though even to this there are exceptions—as for instance the notable case of the Golden Eagle, which in Scotland would have become extinct, as the Sea Eagle has, were it not that the price the “collector” pays for its eggs ensures its preservation at the hands of shepherds.

foresters, and gillies—but these exceptions are not numerous, and it cannot be doubted that the *dealing* “collector” is in these days an evil, so that no true naturalist could object to see obstacles put in his way. Whether he would not be astute enough to escape the meshes of any Act of Parliament could only be ascertained after trial ; but certainly an Act to check his proceedings must be very different from the present Bill, which, I feel sure, would hardly touch him. He is well enough off to employ counsel if charged, and of his own knowledge would be able to indicate a line of defence that would ensure his acquittal perhaps in nineteen cases out of twenty, whatever might be the evidence of the prosecution.

On the other hand, the ordinary schoolboy could not afford counsel ; and, being ignorant of the mode of escape, would be almost invariably convicted. If the Bench before whom he was brought let him off with a reprimand and a nominal penalty, a few cases of the kind would render the Act ridiculous. If the Bench inflicted a serious fine, and in default of payment, as would commonly happen, he went to gaol, the country would very properly ring with an outcry against an Act which brought that fate upon him for doing what an ancient authority—still respected by some people—held to be irreprehensible (see *Deuteronomy* xxii. 6, 7).

But, as already hinted, there are places in which the schoolboy may do real harm, and I see no injustice in limiting him to some extent, while the “collector” is generally baneful ; and, as I have tried to show, the man who gathers eggs to eke out a living would be content, if not pleased, with restrictions that would tend to multiply the birds which produce them—just as professional gunners now admit that, since the passing (in 1876) of the Wild-Fowl Preservation Act, there are more Wild-fowl to shoot. I therefore strongly urge that the present Bill be amended so as to enable *places* and not species to be protected. It is an historical fact that old laws, which certainly did not err on the side of leniency,

prohibiting the taking of the eggs of the Bustard, Crane, Spoonbill, and Wild Goose, have not saved those species from extirpation in England, and a naturalist may well doubt whether any law of that kind would have a beneficial effect on any species whose numbers are now dwindling ; but no one can doubt that if certain localities, judiciously chosen, were reserved as breeding places by inhibiting in them for a longer or shorter time, as may seem advisable, the molestation of *all* birds frequenting them, a considerable number of species, the numbers of which are surely decreasing, would thereby take benefit, and this with proper precautions, without much risk of mischief, which I believe the Bill in its present shape will inevitably produce.

Some of Newton's proposals for altering the Bill of 1893 are more fully stated in the following letter :—

May 28, 1893.

MY DEAR WALSINGHAM,

I thank you for your letter of yesterday. I am confident that my proposal for places of refuge will be found practical. Take for instance the Wells " meals " or sand-hills (mentioned in my " Notes "), where we are at present put to some expense in protecting Terns' eggs, and only succeed in doing so through the constant supervision of Feilden. Here the " order " might define the inhibited place as beginning, say, half a mile, or one mile, from Wells Church, and then extending for two miles along the coast, and 500 (?) yards inland from high-water mark. Within that area *all* *egging* should be prohibited, say, from the 1st or 15th day of May (so as to leave time for the proper gathering of Plovers' eggs) to the 1st July in each year. The same could be done with any of the Broads ; take Hickling for instance, including Heigham Sound, almost the only breeding place of the Bearded Titmouse and Ruff that is left. There the limit might be 500 yards from the water's edge. Notice-boards, or placards warning people of the inhibited area

and period, should be stuck up at the boundaries, as many as may be wanted.

I don't at all want to see these preserved places made too numerous ; and, though I have little faith in County Councils, I believe they would not care to act except on requisition from competent persons ; but if the principle on which the Bill is drawn is allowed to stand I can see no end to their absurdities, and yet none would be convicted but ignorant schoolboys who were taking Thrushes', Robins', Chaffinches' and other common birds' eggs ; for those are just the birds that would be named by County Councillors, being all they have ever heard of.

The mercantile collector who does what mischief is really done in the case of rare or expiring species would always get off ; for he would insist on proof being given that the egg in question was that of one of the prohibited birds, and would be able to puzzle any ordinary (or even expert) witness by exhibiting other eggs not to be distinguished from it, so that no bench could convict.

Another point on which I lay much stress is being able to implicate any one conveying anybody else to a reserved place with intent, etc. This would make boatmen and " trap " drivers very cautious about strangers of whom they knew nothing ; and there is no provision for demanding names or detaining suspected delinquents.

I will not bore you further, and trusting that you will give the matter your attention,

I remain,

Yours very truly,

ALFRED NEWTON.

At the annual meeting of the Society for the Protection of Birds, February, 1894, Newton commented on the Bill of the previous year and expressed the opinion that if it had been carried, one of the " most useless and mischievous measures would have been added to the Statute Book." He then proceeded to give his

audience a practical exhibition of the difficulty, even the impossibility, of identifying birds' eggs.

I have in this box the egg of a Reeve, side by side with the egg of a Redshank, and that of a Lapwing, and the difference can hardly be discovered. If you protect the Reeve you must extend the same favour to the Redshank and Lapwing, and thus you interfere with the Plover's egg trade. The idea of the Committee of the British Association is to give local authorities power to protect certain areas, in which you must prohibit the taking of *all* eggs within certain dates.

*In the same year The Wild Birds' Protection Act, 1894, which was drafted by the Society for the Protection of Birds, and introduced by Sir Herbert Maxwell, became law, but it was still marred (in Newton's opinion) by the attempt to protect by schedule of species, and he still kept hammering away at trying to induce people to accept the more practical means of reserved areas.

I do not know whether you ever saw some "Notes" that I wrote on Maxwell's first Bill (1893), but they were reprinted at H. Brown's request in the *Scott. Nat.* for last year. The argument I therein advanced is in my belief as good now as ever, though (as you know) the existing Act is a modification of what Maxwell originally intended, but the mischief (as I conceive) of trying to protect the eggs of species by name still remains as an alternative. The more I consider the subject the more certain I am that the principle of "area protection" is the only one that is practicable, and I much wish your sandhills, the neighbourhood of Hickling, and I daresay two or three other places in Norfolk, could be placed under the Act. But great judgment will be required to define the limits of each "protected area" as well as the close-time, whether it is to begin on the 15th April, 1st or 15th May, 1st of June, and so on. These are points on which local knowledge is everything, and most likely

the close-time should vary in accordance with the locality. I only pretend to indicate the general line to be taken, and further than that I have only to say try to get Walsingham over. He has a way of conciliating people which would be very useful if he were on your side, and I know he is that from the part he took in the House of Lords in 1893.

If it had not been for that fool of a Lord — I think Maxwell might have been persuaded to accept the amendments of his Bill, and all the Terns would have been safe last year instead of being sacrificed.*

The Society for the Protection of Birds, which was founded in 1889, received the first guinea towards its funds from Newton, and always found in him a cordial helper and adviser. Though he was several times invited to do so, he would never consent to become a Vice-President of the Society, possibly because he mistrusted what he considered to be their somewhat amateurish methods. He was constantly deploring the mistaken enthusiasm of people whose letters in the *Times* and elsewhere seemed to him to do more harm than good.

"The worst is that people will gush and be sentimental, and as I found out before, when I had to do with the Bird Protection Bills in Parliament, the sentimentalists gave far more trouble than any one else."

Though he condemned the form of the Act of 1894, and was always hoping that some day a more reasonable scheme might be adopted, he was bound to admit a few years later that much good had been effected even by that imperfect measure.

How to get a commonsense Act of Parliament passed I don't know. We had one once which was pretty good, but as you know the poulterers got Harcourt to repeal the one useful clause in it, when it had existed only for

* Letter to Col. H. W. Feilden, January 9, 1895.

about a twelvemonth, and since that time the flood of silly sentimentalists has swept away everything practicable. They have been aided by meddlesome people like — and —, who have never been able to understand the points at issue. In the present state of things I doubt whether we should be a bit better off for a new Act; there is no one to look to it in either House of Parliament. I think there is no chance of Bryce's Bill being carried for many a year. There is no doubt as to the mischief it would do in regard to birds; and the Golden Eagle would follow the Sea-Eagle into the *Ewigkeit*.

* I quite agree with you that probably no harm has been done, or is likely to be done, by taking Crossbills' and Siskins' nests; both species are no doubt increasing in number with the spread of planting in Scotland; (by the way, is the Crested Titmouse extending into the new plantations? It ought to do so soon;) but still it is disgusting that all these nests should be taken just to put a few shillings or pounds into a man's pocket.

On the other hand, we must recognise the fact that the Acts have done a great deal of good. The Great-crested Grebe was all but done for in Norfolk, and is now flourishing there as well as in other parts of the country. I hear of Tufted Duck ("in swarms") everywhere, and this year there has been a pair of Redshanks breeding on the wet meadows between this place and Grantchester, such a thing having been unknown for much more than 50 years.*

The inadequacy (as it seemed to him) of the existing Acts did not deter Newton from his public-spirited work, and for many years he devoted much time, as a mass of correspondence testifies, to attempts at securing proper protection for certain local species. In 1893 he persuaded the Zoological Society to award silver medals to John Peter Grant, of Rothiemurchus, and Lochiel for their

* Letter to J. A. Harvie-Brown, June 25, 1900.

successful protection of the Ospreys in Scotland. He also took an active interest in the (at one time) precarious fate of the Great Skuas in Shetland :—

I learn with much gratification the result of your interviews with Mrs. Traill, to the effect that Mr. Gilmour is determined to afford effectual protection to the Bonxies on Foula. I have no doubt that the Society for the Prevention of Cruelty to Animals would easily and readily find fit watchers for next season. But I am always most anxious that the protection of birds should not be *overdone*, as I see great danger of its being. Given absolute protection to the breeding birds during a proper "close-time," I am convinced that a certain proportion of eggs may be safely taken without detriment to the species. This is the result of very general experience during a great many years, and herein I find the present law so very objectionable ; but still so long as it is law it must be obeyed.

If it were possible to allow people to take Bonxies' eggs up to a certain day (what the day should be I don't pretend to know) but not to take a single egg after that day, the people would have no grievance and I am sure that the birds would not be less numerous. This, however, is a consideration rather for legislators than for others, though such permission would enable the law, as it is, to be more strictly enforced, without any appearance of hardship. I know it was intended by those who had to do with the last Act of Parliament, but by their blundering ignorance, and the reading of the Act adopted by the English Home Office, which I believe was adopted by the Secretary for Scotland, the liberal interpretation was rejected, and the consequence has been very disastrous in many cases.*

The anomalies of the law were intensely irritating to him, and perhaps caused him to say unduly hard things of the legislators.

* A.N. to W. Eagle Clarke, July 16, 1900.

"The watcher we keep on Breydon Water is defied by the gunners there who want to shoot Spoonbills now frequenting it, and then a man is fined at Yarmouth for having two blackbirds in his possession!"*

An effort was made to remove the protection from the colony of Terns at Aldeburgh on the ground that they were responsible for the falling-off of the inshore fisheries.

September 10, 1906.

MY DEAR TUCK,

I am glad to see by a newspaper paragraph that you are taking up the question of the Terns at Aldeburgh (or Orford) Beach, for it is high time that somebody who knows something about birds and their ways should do so. I am too old to fight, and, moreover, I have not the necessary local knowledge. I have not been there since June, 1885. I am quite sure that there were not 40 pairs of Terns on the whole beach, and it is quite absurd for any one to assert (as I read) that there are now 40,000 birds.

That the inshore fisheries have been "fished out" has long been notorious. I made a point of it in an Address I gave to the British Association at the Glasgow meeting just 30 years ago, and in consequence my good friend Holdsworth (who had been Secretary to Huxley's Herring Fishery Commission) fell foul of me and we had a lively time in *Nature*. It is the greatest nonsense that can be to put down the falling-off to birds of *any* kind. In the days when sea-birds of all sorts were ever so much more numerous round our coasts than they have been for the last 50 years, there were plenty of fish.

What I want to know, and should be grateful to you if you could tell me, is the *real* cause of the present dissatisfaction. Are the fishermen honestly but ignorantly of opinion that the Terns have so multiplied as to become injurious, or have they been "put up to" this? If so, by whom? When I was last there the Aldeburgh men,

* A.N. to J. A. Harvie-Brown, June 22, 1900.

or, say, a dozen of them, were keen eggers—for profit as well as sport. May not these men, dissatisfied with the order of the County Council prohibiting egging, be at the bottom of it? What the precise order was I know not: if it was *total* prohibition my sympathies could be with the men; but if it simply laid down a close-time after which no eggs were to be taken, it would be reasonable.

Yours very truly,

ALFRED NEWTON.

He objected strongly to the too common practice of shooting rare birds, but he admitted that there were cases, as, for instance, when it was impossible otherwise to identify them, in which shooting might be justifiable.

I am very glad to learn you are endeavouring to obtain the strange bird you saw. I am generally very much averse to the common practice of destroying indiscriminately all foreign stragglers; but this is just one of the exceptional cases in which the death of a victim will in all probability be a real advantage to Ornithology, and I trust your efforts will be successful.*

It is not quite easy to understand his attitude towards shooting birds on the autumn migration.

I think we cannot complain of people shooting birds on the autumn migration, at that season stragglers may as well fall to the gun as be lost at sea, which would probably be their fate since they have got "out of their know," to use a good East Anglian expression. Feilden writes to me of very young partridges, "squeakers" we used to call them, being spoken of as "doddermites." I never heard of the word before, and do not know whether it is given by Forby. †

Probably he had in his mind only those stragglers that stray far from their course, for at other times he

* Letter to J. A. Harvie-Brown, April 4, 1867.

† A.N. to T. Southwell, September 16, 1902.

condemned very strongly the shooting of birds of prey in the autumn. Many of the Kites and Ospreys that fall victims to the August gunner are (or were) birds that had been reared in Britain, and if unmolested would probably return to breed in the following year.

In spite of his enthusiasm for bird-protection Newton, always had a very strong sympathy with the true egg-collector, which must have become evident from the preceding pages. From his earliest years he had been a keen collector of eggs, and later he tells how in one day in April, 1861, he took two nests of the Golden Eagle in Scotland, "crawling up hill with two sticks." He was always essentially an out-of-doors man, and, in spite of his lameness he managed to cover the country in a wonderful way. A correspondent writes :—

On October 14, 1874, Mr. John Henry Gurney, his son (J. H. G.), Professor Newton, and I saw a Swift flying round Cromer Church tower: six Ring Dotterel at Northrepps. At this time, as we walked across country, the Professor declined any help in crossing a hedge, but instantly threw his crutches (sticks) over it and pitched himself through it so as to alight on his shoulder (or head, arms, and shoulder). He seemed expert in going through without scratch or hurt, in spite of his lameness.

To the end of his life he sympathised with the egg-collector who was also a naturalist, but he realised fully the limitations of egg-collecting pure and simple.

I am afraid I may fall somewhat in your estimation when I tell you that I don't suppose I shall ever again be able to take the interest in eggs that I did before I finished my Catalogue. I hope never to lose it, but one can't help finding that there are many other branches of Ornithology which are really more important, though I will never yield to any one in maintaining that there is nothing like bird's-nesting for bringing you into contact

with the bird and its life ; so that it is in one sense one of the highest pursuits of Natural Science. But I was never one of those—or, if ever, that must have been well over fifty years ago—who thought that “ oology ” was going to have an important effect on phylogeny (*i.e.* classification) and so forth.*

* A.N. to F. C. R. Jourdain, March 18, 1907.

CHAPTER X

MIGRATION AND DISTRIBUTION

IN the realm of Ornithology, and, indeed, in all the study of Nature, there are few questions that appeal so strongly to the imagination, and few questions of which man is still so ignorant, as that of the Migration of Birds. From his boyhood Newton was keenly interested in migration, and with his brother Edward he kept for many years a record of the movements of the birds at Elveden.

The ordinary observer, until lately at least, never thought of birds being resident as a species while they were migratory as individuals. Thus it came to pass that scarcely anybody knew of the migration in this country of the Song-Thrush, the Redbreast, and others. It needs a considerable familiarity, not only with the district, but with the individual birds frequenting it, to find that out, and in some cases it is very difficult to do so. I have never been able to observe for myself any indication of the Hedge-Sparrow being migratory, yet I feel sure that it is. Fifty years ago I observed the local movements of the Redbreast, but it was not until I had passed some two or three seasons (July and August) in Dorset, that I noticed its actual migration, and that in considerable numbers.

It seems to me probable, though I cannot prove it, that the young broods of nearly all birds leave the place of their birth as soon as they are fit to travel. People commonly say they are driven away by their parents, and in some cases that certainly seems to be so; but I very much doubt whether it is in the majority of species,

and I suspect the young go off of their own accord. It would take a lifetime to make this out, and few men have the leisure or opportunity for such continuous observation as would be required. I have been in my younger days especially favoured in that way; for beginning as a boy, I had nearly twenty years of good opportunities; but, of course, of those twenty years a great part was spent in learning one's business, I can't say in apprenticeship, for that would imply the teaching or supervision of a master, and master, of course, I had none.* Moreover, during that period there were various interruptions, such as schools, college, and going abroad from time to time; though I had my brother to help me, and he was a far better observer than I. Our joint experience, however, points to what I have stated, and the "Register" we kept for nearly ten years warrants my having confidence in it; the more so that since that time the more I read about migration by *good observers* the more I am confirmed in the opinion.*

The letters of ill-informed persons to the newspapers about migration, not less than about bird protection, roused Newton's wrath. The "silly season" of 1874 was marked by a discussion of this sort, which impelled him to write to *Nature* a masterly exposition of the facts of migration as far as they were then understood. The discussion began with a theory of migration set forth by a Scandinavian poet, which treated that movement as an attempt on the part of the birds to obtain more light. It is not certain whether the theory was advanced in earnest or merely as a poetic fancy, but it is obvious that it contains its own refutation. The first letter, which professed to give the "latest accepted theory" on the subject and which prompted Newton to reply, is so remarkable that extracts may be quoted from it here.

* Letter to W. Eagle-Clarke, February 2, 1901.

I believe it was only some twenty or thirty years ago that anything like a practical solution of the difficulty was arrived at. The birds congregating about the south coast are seized with a sudden impulse or mania to fly upwards. This is caused by some atmospheric change coinciding with a warm south wind moving in a high stratum, into which the birds soar with an involuntary motion of their wings. This motion (involuntary like that of the heart) is continued for many hours, and the birds fly blindly along until the paroxysm passes off, when they at once begin to descend, making many a fatal drop into the sea.

The same phenomenon occurs in Africa and southern countries, where the migratory birds congregate for a northern flight about April. Experiments were tried here and in Africa which tended to corroborate the above facts. Migratory birds were kept in cages along the coast, and it was found that each was seized with a prolonged paroxysm coinciding with the time that the wild birds disappeared. Cages were constructed with silk at top and bottom to prevent the birds from killing themselves; and it was noticed that after the paroxysm had passed away, the birds began to look about them, to plume themselves, and eat and drink, apparently with a notion that they had arrived at their new home.*

Of this Newton writes :—

On reading these wonderful paragraphs, some questions naturally arise. How does the writer account for his “birds congregating about the south coast”? What brings them there, that they may be “seized with a sudden impulse or mania to fly upwards”? Who has ever observed the “atmospheric change” and coincident “warm south wind moving in a high stratum”? Do these remarkable meteorological phenomena occur but once in the whole season of migration, or is there a succession of them to suit the convenience of each migratory species? Who, moreover, has seen the birds soar into

* *Times*, September 18, 1874.

this peculiar current of air ? and who of such fortunate persons knows that the motion of their wings under such conditions is "involuntary like that of the heart" ? Finally, what is the cause of the "paroxysm" ? for, without knowing that, to attempt to explain the observed facts of migration is an attempt to explain *obscurum per obscurius*.

When a satisfactory answer is given to these questions, it will be time to inquire whether this "latest accepted theory" of migration sets the matter in any clearer light, or whether it is not as arrant nonsense as was ever foisted upon an innocent public, even at the height of the "silly season." The last paragraph of the writer's letter, I may remark, has nothing in it of consequence. Granting that the migratory impulse is instinctive, it is, like other instinctive practices, followed as far as circumstances will allow.*

Then follows an admirable statement of the original causes of migration, and of the modes of migration, ending with the question :

"How is it that birds find their way back to their old home ?" This seems to me the most inexplicable part of the whole matter. I cannot even offer an approach to its solution. . . . Here I have no theory to advance, no prejudice to sustain. I should be thankful indeed for any hypothesis that would be in accordance with observed facts. . . . The solution is probably simple in the extreme—possibly before our eyes at this moment if we could but see it—but whosoever discovers it will assuredly deserve to have his name remembered among those of the greatest discoverers of this or any age.

With the caution—perhaps even excessive—that was so characteristic of him, Newton would never permit himself to advance any general theory of migration, nor was he even satisfied with any of the theories suggested

* *Nature*, September 24, 1874.

by others. It is, indeed, hardly too much to say he despaired of an answer ever being brought forward to the great question—in his own time, at all events.

With much that you say I wholly agree, though I can't attach much value to what has hitherto been written about "Land routes" of migration and so on. There may be such things, indeed, I will go so far as to say that such things *probably* exist, but as yet we really *know* next to nothing about them. The worst of it is, I don't see my way at present to knowing much more, for want of well-placed and trustworthy observers. The ordinary man who records his first Swallow and so on, however faithful he may be, goes very little way to help, and how to improve him I don't know.

Even if I had kept a record of my own observations on birds travelling by night, since I took up my permanent abode at Cambridge, it would tell me very little that would be of use; and I take it that in all that time few people have had opportunities so good as mine; for my habit of working late at night and, except in really cold weather, with a window open, is not one that many indulge. I can only, as a general result, say that when the sky is clear one hears nothing; but given a cloudy sky, from the end of July to the middle of October, the chances are one hears birds fly over. What birds they are it is nearly always impossible to say, because the generality seem to use a different language when travelling.

After long experience I have come to the supposition that certain notes are uttered by Oyster-catchers; but I never heard an Oyster-catcher utter such a note by daytime or when he is at home! It is very rarely that one catches an unmistakable note, a Cuckow's, a Redshank's, or a Golden Plover's, yet hundreds of them must be passing over.

There is plenty more to be done in the migration way, if we only knew how to do it.*

* Letter to J. A. Harvie-Brown, September 9, 1900.

I am glad of the good progress you have been making in the Migration Report. It is impossible for me to say what your ingenuity may not have evolved out of all the records in the *Field* and elsewhere that you have been working at; but I own I shall be surprised if you are able to lay down any "land routes," my ideas being that local influence is beyond human intelligence and consequently calculation. However, we shall see, and I will admit that there are a *few* recorded facts that seem to show it is subject to rule: *e.g.* I have known year after year a Woodcock to be flushed under a particular tree, fly out to the open in a particular place, and be then shot by a gun placed for the purpose! Then there is that Rough-legged Buzzard which used to fly year after year to a particular dead tree at Northrepps and be always shot dead! These things incline one to believe that there may be land routes; but who is to lay them down?*

Barrington's evidence as to long-winged or short-winged examples of the same species of bird strongly confirms what I put forth in "D.B." (p. 557), and that is really only the legitimate deduction of what Tristram had already observed in the passage (*Ibis*, 1865, p. 77), to which I there refer. There is nothing to show that the age of the individual has anything to do with the matter, and I don't think it has. It is simply that the longest-winged birds go furthest in each direction, and apparently start soonest. It seems to me quite natural that they should do so. The tendency of long-winged individuals is to breed others as long-winged, or even longer, and so the thing goes on, and has been going on for ages. This may point to the polar origin of life, and certainly does not contradict such a supposition; but it can't be said to go far to support it. All I think one can say is that if the hypothesis that Life originated at the Pole be true, the fact would very likely account for the facts as we find them. Further than that it would hardly be safe to go at present.†

* Letter to W. Eagle-Clarke, April 7, 1900.

† Letter to J. A. Harvie-Brown, November 2, 1900.

He often talked and wrote to his friends of the birds he heard passing over Cambridge on dark nights. "Owing to my practice of writing late at night these thirty years or more, with a sliding pane in my window let down, I have observed that they come from the N.E. in a straight line—flock after flock."

If he was unwilling to formulate a theory of migration, he was always eager to point out the fallacy in any of the new ideas or to show the absurdity of ancient superstitions. Of these latter, the hardest to die was the theory that birds hibernated in a torpid state, and he declared that on this point only in connection with this subject could we boast ourselves to be clearly wiser than our ancestors. But year after year, instances of this curious belief presented themselves to him either in public print or in private communications.

I forget all about Kalm's story ; but it is really not so uncommon for people to be able to persuade themselves of the truth of anything they want to believe, as Mr. Gladstone was said to do. I was once almost stumped by a story about torpid Swallows till providentially a witness presented himself and explained the whole thing by stating that they were Bats !

I had a bit of fun once in *Nature* with the late Duke of Argyll, who pretended that his brother-in-law (I think it was) had *seen* Swallows or Martins dug out of the bank of the Tigris or Euphrates. I doubt whether the Duke believed it, but he felt bound in honour to stand up for his informant.

Elliott Coues was much inclined to believe in torpidity, perhaps did believe in it, but was ashamed to declare his belief, for he had enough physiological knowledge to know that such a thing is all but impossible in a bird. No one has ever traced or ever will trace the bounds of human credulity ; for the last ten days or more people have been writing letters to the *Times*, nearly all

expressing their belief in "dowsing," and that is evidently the belief of the editor or proprietor, or both.

I must look up my Olaus Magnus ; I think he gives a woodcut with an amusing scene of Swallows being taken out of a fishing net, and it might be worth while for you to have this copied and inserted in your book.*

Of the same kind is the equally ancient belief that little birds get themselves conveyed from one country to another by their bigger brethren. Storks and Cranes on their migration are manifest to beholders, but the transit of lesser birds of feebler flight is seldom evident, and when, as often happens, large and small birds disappear or arrive simultaneously, what is more natural than that the ignorant should suppose that the latter should avail themselves of the former as a vehicle ? Thus in 1740 the Tartars of Krasnojarsk assured J. G. Gmelin (*Reise durch Siberien*) that when autumn came each Crane took a Corncrake on its back and transplanted it to a warm land, while the well-known belief of the Egyptian peasant that Cranes and Storks bring a living load was not long since gravely promulgated in this country as a truth.†

One would like to know what measure of scorn he would have poured on the theory recently, and (it is said) seriously suggested, that the Cuckow lays her eggs in the nests of other birds in return for her services as guide from southern lands !

In the much discussed question of migration routes he took the deepest interest, and he had the highest opinion of the work of Professor Palmén ; but later it appeared that his belief in routes was shaken, and he returned to the more tenable creed that every species on migration goes its own way, and what is called a migration route is only the coincidence of the way taken by more or few of them.

* Letter to W. Eagle Clarke, January 11, 1905.

† "Dictionary of Birds," p. 550.

I think we don't know enough about the routes of birds, if routes there be, to say which are the best stations for observing them, and these can only be found out by continuous series of observations.

We want a score or so of Gätkes begotten and perched on a score or so of lighted-up islands and lightships all round; then one might do something more than guess warily; but even thus the "personal equation" has to be taken into consideration. I think there is as little chance of there being another Gätke born as there is of another Gilbert White, Shakespeare, or Robert Burns!

I hope that Clarke's Redpoll studies will not send him into a Lunatic Asylum; mine nearly did so with me, but fortunately I had Dresser to share the trouble, and we continued to keep ourselves sane—at least apparently so. I think Redpolls are like the Apocalypse, their study finds a man mad (like poor Coues for instance), or makes him so. For this reason I wish X—— would take them up, and then peradventure he might be finally interned in Colney Hatch and cease to do evil; that he should learn to do well I think impossible. But I am growing tolerant in my old age, and look upon subspecifiers as Mohammedans look upon Franks; uncomfortable creations that Allah for some purpose of his own permits to exist, an old but apt simile.*

He had the greatest admiration for Herr Gätke, of whom he wrote that, "through his watchfulness Heligoland has attained celebrity as a post of observation quite beyond any other in the world, so that ornithologists may at times wonder whether the man made the station or the station the man—so fitted have they been for one another." The two men very frequently corresponded, but they only met once, when Newton was taken to Heligoland on board a friend's yacht. At the end of his stay, when he was stepping into the dinghy to take him on board again, Newton had the misfortune to slip

* Letter to J. A. Harvie-Brown, January 9, 1906.

and ruptured an important tendon in his sound leg. Thenceforward he went always with two instead of, as formerly, with one stick, or (in the words of a friend of his) from a three-legged he became a four-legged man.

With one of Herr Gätke's points Newton found himself unable to agree, and that was with regard to the speed at which migrating birds travel. Gätke maintained that Grey Crows flew from Heligoland to Lincolnshire in three hours, at a rate of 120 miles an hour, a speed which it would appear impossible for a bird of the crow kind to attain. Still more wonderful was Gätke's contention that the Bluethroat flies from the Nile Delta to Heligoland in nine hours, and his observations of Curlews and Plovers, which were timed to cross the island of Heligoland, a distance of rather more than four miles, in one minute. Against these Newton set the commonly observed instances of Swallows and Partridges, which are easily outstripped by a railway train, and the speed of Carrier Pigeons, which was declared by Mr. Tegetmeier to be about thirty-six miles an hour.

Though it seemed that he almost despaired of an answer ever being given to the fundamental questions of migration, he spared neither time nor trouble in trying to investigate the facts, so far as they might be observed, of that wonderful movement. It was mainly owing to his initiation that the British Association appointed in 1880 a committee to inquire into the migration of birds. For twenty-three years (1880-1903) Newton presided over this committee, which collected a great mass of valuable information, chiefly through the untiring energy of Mr. J. A. Harvie-Brown and the late Mr. John Cordeaux. One of the schemes originated by the committee, in which he took the most active interest, was that of observing migration from lighthouses and light-vessels,

and he gave unfailing assistance and advice to Mr. Eagle Clarke, who isolated himself in those remote places during his vacations for several years, with most valuable results.

One of the first journeys Mr. Eagle Clarke took on this account was to the lighthouse at Ushant in 1898; Newton gave him considerable assistance in getting the necessary permission, but the trip came to an untimely end:—

Clarke, who went with a Government grant and the sanction of the French authorities to Ushant to make observations on bird migration, found himself the object of suspicion and so dogged by a gendarme, sent specially from Paris to look after him, that he gave it up, on the advice of H.M. Consul at Brest—in order “to avoid serious consequences”—as a bad job and came away *re infecta*. The military prison of *Cherche Midi* in Paris seems to be the proper place for a spy who passed off as an observer of autumnal migration. I wonder if the French authorities thought of that?

But the visit was not altogether a failure, and some very interesting flights of migrants were seen.

It is very good to find that after all your visit to Ushant has produced something, and I congratulate you on the excellent reports you have received. I only hope they will not bring the reporters into collision with the authorities, or your friends may find themselves condemned as traitors to the Isle du Diable! How they must have enjoyed the “*petits oiseaux*” that killed themselves, for there is nothing by way of “*gibier*” that Frenchmen more delight in!

Without turning to Gätke I forget what is the greatest number known to have been killed at Heligoland; but 1500 in one night seems to be a very big bag.

I heard the other day of a saying either from Yorkshire or Lincolnshire which pleased me much. A man said that there was such an arrival of Golden-crested

Wrens on the shore, that the bushes were "lousy" with them.*

In the autumn of 1903 Mr. Eagle Clarke spent thirty-one days on board the Kentish Knock light-vessel, and during the last two days he was there he saw one of the largest movements of birds that any ornithologist had ever witnessed :—

From Saturday at 11 a.m. until Sunday at 4 p.m. Starlings and Larks in extraordinary numbers passed from E. to W. *without a break, i.e.* a day and night. . . . No one who has not witnessed these E. to W. flights can form any idea of the countless numbers of those and other species crossing the North Sea at this season. On Saturday afternoon the first Jackdaws and Rooks appeared in small numbers. On Saturday at 6.30 p.m. and down to 5 a.m. on Sunday we had crowds of birds at the lantern—Starlings, Larks, Meadowpipits, Chaffinches, Goldcrests, Mistlethrushes, Song Thrushes, and a few Rooks and Jackdaws (the two latter species being captured *at the lantern*). It was pitiable to see the numbers that rained overboard. They could only be estimated at thousands. Very few fell on deck owing to the wind which prevailed at the time, and which carried the victims beyond our reach. The species mentioned were captured by means of a hand net by a seaman stationed on the top of the lantern, who netted them like so many moths as they approached the lantern. In this way we took species varying from the tiny Goldcrest to the clumsy Rook ! †

In acknowledging this letter Newton wrote :—

It is very gratifying to know that you are pleased with the whole thing, and certainly the experiences of your last day or two will be something to remember for ever. It is indeed a striking instance of the enormous sacrifice of individual life made by Nature, I suppose for

* Letter to W. Eagle Clarke, November 20, 1898.

† Letter from W. Eagle Clarke, October 21, 1903.

the benefit of the species, but it is hard to see how the machinery works. However, I am not going to descant on this now. Clearly your observations have been more interesting than those on the Eddystone, and I hope we shall have from you a paper in the *Ibis* accordingly; but more than that they ought to help enormously towards that book on migration generally that I have long been hoping you will one day write; for you of all men are the man to do it. Still, still the great mystery of how the birds do it remains, and that I begin to fear will never be explained in my time; but it is no deterrent, or ought not to be, to you.

* The more the facts of migration are ascertained the more likely are we (or our successors) to understand what brings them about; so I trust you will be setting seriously to work on what ought to be a great book, which will cast into shade everything that has been written before, even the good Barrington's excellent performance.

Often as I have thought over what appears to be the "waste" of bird life at sea (a thing which very few people ever take in at all) this last letter of yours fills me with fresh and ever-increasing amazement. The *slaughter*, if one may so call it, seems so indiscriminate; there can be scarcely room for Natural Selection to act. Were you able to form any opinion as to the proportion of young to old birds, or were the troops almost wholly one or the other? *

Mr. Clarke could not return a satisfactory answer to the last question, owing to the high speed at which the birds were travelling, but he remarked:—

I have a number of notes on the subject of old and young, but in the *vast majority* of cases it was quite impossible to say what the flocks were composed of in this respect. As to the waste of life, I am afraid Nature never contemplated lighthouse and lightship lanterns, and it is difficult to see how she works, if she works at

* Letter to W. Eagle Clarke, October 22, 1903.

all, in this particular connection. We should expect fewer old birds to perish, and yet what a vast number do !

Referring to this destruction of birds at lightships, Newton wrote :—

It does not seem to me that the destruction of life is due to the lightships. They only enable one to see it. It would surely go on nearly the same if there were no lights. The birds are evidently *lost* already, and they only make for the light in the want of any other directive impulse. Unless the weather cleared or something else (one hardly knows what) happened, they would fly on aimlessly till they fell from exhaustion, perhaps on land, most likely into the sea. It is a dreadful problem, one to keep one awake at night thinking upon it.

In one way it is plain that Natural Selection does act. The birds that migrate successfully, and so carry on the species, must be of the best, any shortcoming must carry a fatal penalty ; but what a lot of unlucky individuals there must be ! *

It was at Newton's suggestion that Mr. Eagle Clarke decided to write his invaluable book on migration, and he gave him help in a hundred ways in the task. Newton's knowledge of the old writers on Natural History was profound, and he was able to make many suggestions for the chapter on the history of migration.

January 5, 1905.

MY DEAR CLARKE,

Such an introduction to your book would be most desirable if not necessary, and I am sure I will gladly help you all I can. Nothing like it has, I think, been attempted of late years, and the old attempts are sure to be full of errors, because so much has turned up since they were written. I have never gone regularly into the business and I can't say off hand what Aristotle's or Pliny's views on migration were ; but it will not be

* Letter to W. Eagle Clarke, October 24, 1903.

very difficult to make out, the one drawback in the former case being that you never know what is his and what is his reporter's or note-taker's, for I am one of those who think that his text has been overlaid by some one else.

The best edition of Aristotle on Animals is that by Aubert and Wimmer, which has a capital index and a German translation to face the Greek, and that I can lend you at any time. I have also Sillig's edition of Pliny, which is said to be the best, and that is equally at your service whenever you are ready for it; but I suppose you are not going to begin immediately. I think you must not trust Bostock and Riley without comparing their version with the original. The English translations of Aristotle are too misleading to have anything to do with.

A much more troublesome job will be that offered by the mediæval writers, if you meddle with them or their successors of the Renaissance, Belm, Gesner and Aldrovandi; but you have to be on your guard that "hibernation" as used by them is restricted to its proper meaning—*wintering*—and not necessarily in a torpid condition. I think the belief in torpidity and submergence is comparatively recent, and it is indeed astonishing what a hold it obtained on otherwise sound-thinking men. Most certainly there is no sign of the real ancients, Homer and Job, holding it.

If I remember right, Pliny had a great notion of birds being transmuted; the Cuckow becoming a Sparrow-Hawk in winter, and the Redstart a Redbreast; but Pliny was a very child-like person in many ways, though he met his end as a man of science should. I have a notion (which may be wrong) that the submergence theory was invented in the North, Olaus Magnûs and people of that sort.

Anyhow a history of opinion on migration would be a delightful thing to write, and write it I hope you will.

Yours very truly,

ALFRED NEWTON.

Though he did all that was in his power to forward this study, the same note, almost of despair of solving the great question, sounds in all his writings on the subject of migration :—

Lay down the paths of migrating birds, observe their comings and goings, or strive to account for the impulse which urges them forward as we will, there still remains for consideration the most marvellous thing of all—How do the birds find their way so unerringly from such immense distances ?

A writer * in the *Contemporary Review*, giving a somewhat fanciful description of the “ army of birds ” on the Spring Migration, remarked that it was “ like the Kingdom of Heaven which cometh not by observation.” Newton justly retorted that all we know of migration is due to observation, and nearly all we do not know to want of it.

Closely connected with Migration is the Geographical Distribution of Birds. The publication in 1876 of Wallace’s great book † was welcomed by Newton as an event—

that will, if I am not mistaken, in after ages characterise the present year as an epoch in the history of our sciences inferior only in importance to that which marked some eighteen or nineteen years ago the promulgation of a reasonable Theory of Evolution by Mr. Darwin and Mr. Wallace. And while it is to the latter of these two naturalists that we owe the boon that has recently been conferred on us, it is unquestionably from the former labours of both—united yet distinct—that the boon acquires its greatest value.

He was careful, however, to add that he by no means

* The Duke of Argyll, *Contemporary Review*, July, 1880.

† “ The Geographical Distribution of Animals, with a Study of the relations of living and extinct Faunas as elucidating the Past Changes of the Earth’s Surface.” By Alfred Russel Wallace, 2 vols.

pinned his faith to all the author's details or to all his conclusions.

As was the case with many other naturalists, he had long been groping in the dark with regard to this question, and Wallace's book immediately let in a flood of light.

With regard to the Ptarmigan question I think I can tell you exactly how the mistake of admitting *Lagopus rupestris* as a British bird originated. More than a century since Edwards described and figured under the name of "Rock Grouse" a Ptarmigan from Hudson's Bay, which as the figure now shows must have been a hen bird in the orange-yellow plumage of the breeding season, and on this figure was founded the species known in systems as *Tetrao* (or *Lagopus*) *rupestris*—a name which is therefore applicable to the smaller black-tailed Ptarmigan of the northern parts of North America.

The different plumages assumed by the Ptarmigan of Europe were for a long time little known, and for at least the first twenty years of the present century it was generally (I do not say universally) assumed among naturalists that this bird had but two states of plumage, being white in winter and *grey in summer*, this last assumption being, as we now know, partly an error, since in the breeding season, *i.e.* at the beginning of summer, the plumage of the hen is orange-yellow, while the grey dress is put on later in the summer and may be more correctly called the autumnal plumage. However, this fact was not generally known to the naturalists of the time who (with perhaps a few exceptions) believed that the summer plumage of the European Ptarmigan was *grey* and that of the American *orange-yellow*.

Under this belief, some thirty years or more ago (I cannot, in the absence of books, speak positively), a hen Ptarmigan was sent from Scotland to (I think) Lord Stanley in *orange-yellow* plumage, the ordinary plumage of the breeding season, and as at that time it was considered that the American species *only* assumed a dress

of this colour, it was naturally thought that this Scotch specimen belonged to the American species, and accordingly *Lagopus rupestris* was enrolled as a British bird. This appears from Mr. Eyton's book and I think also from the "Fauna Boreali-Americana."

When it was subsequently discovered that the hen of the Scotch Ptarmigan had a breeding-plumage of orange-yellow like that hitherto supposed to be peculiar to the American bird, the presumption became strong that those who considered Lord Stanley's specimen to belong to *L. rupestris* were mistaken, and this presumption became almost proved when time went on and no one could point to a Scotch specimen of a cock bird with the characters of *L. rupestris*.

For myself I feel well assured that there is no reasonable ground for supposing that *L. rupestris* has ever occurred in Scotland.

That you should find the Ptarmigan of the hill-tops in Sutherland and thereabout smaller than those frequenting a lower zone is quite in accordance with what I should suppose would be the case, but I cannot believe that any valid specific distinction can be made out between them. Look how Grouse and Partridges vary in size according to the district in which they are reared, but indeed there is no need to draw examples from other species, since the Ptarmigan itself, to my knowledge, supplies instances. The largest Ptarmigan I ever saw or handled was obtained on the island of Qvalö (on which Hammerfest stands), I think two of them would almost weigh as much as three from the mountainous frontier region of Norway, Sweden and Finland, and the fact may I believe be explained thus: Owing to the influence of the Gulf Stream Qvalö (though situated further north) enjoys winters much less long and severe than does the mountain tract in question, and one may safely assume that the Ptarmigan of the former are better fed and consequently as a rule larger than those of the latter. In like manner the Ptarmigans of your middle hill zone are larger (as you say) than those of the summits. The fact

your informant mentioned of the hilltop Ptarmigan assuming their winter plumage earlier than the birds lower down shows that the winter there is longer, as of course, might have been predicated, and it is extremely interesting to me to have my observations of the Norwegian birds borne out by yours of the Scotch ones. The very fact you mention of the Ptarmigan being scarce on the Sutherland hilltops and plentiful lower down shows that the conditions of their existence on the former are less favourable to them than where less exposed.

As to *Lagopus montanus*, as I have said elsewhere, I believe that all the mountain Ptarmigans of Europe (exclusive of Iceland and Spitzbergen) are referable to one and the same species, viz. *L. mutus*, but I must confess that I have not had all the opportunities I should like of comparing Ptarmigans from the Alps and Pyrenees with those of Scotland and Scandinavia. It is true that the Swiss and Pyrenean birds are now completely isolated and cut off by a wide interval from their northern brethren, but no one can doubt that there was a time and that (geologically speaking) not so long ago when the range of the species was uninterrupted. Bones of the Willow Grouse and Snowy Owl are found in the French bone-caverns very far south, contemporary with those of the Rein-Deer, and it is pretty plain that as that glacial epoch gradually disappeared birds of the habits of the Ptarmigan would be driven (by the coming of a warmer climate) to the mountains, while they would cease to exist in the low countries.*

Although he would never commit himself in his published writings to theories of migration and distribution, he sometimes allowed himself to speculate on such matters in correspondence with his friends :—

I never made any notes that would be of any use to you on the polar distribution of animals, for I did not

* Letter to J. A. Harvie-Brown, October 11, 1869.

get far enough for that at the time when I was thinking whether I could bring the subject into a lecture. What then occurred to me was little more than this :—

Life on the earth most likely had its origin at one of the poles, since there conditions that admit of its existence would first occur as the planet was slowly cooling down.

Gradually Life, now differentiated into Plant Life and Animal Life, made its way towards the Equator, and in so doing became more and more differentiated.

Then must (?) have come a change which wholly or almost wholly divested the poles or pole of Life, confining it to equatorial regions. Such a change as this was probably more than once repeated in the course of various geological epochs. When things pretty much as we know them now came to be established there was (and is) probably very little if anything left of the primeval polar life ; for setting aside the possible total extinction of it through severity of climatic conditions, evolution would have so far improved the forms that were travelling polewards that any vestiges of the original polar life would be swept away by the better-fitted newcomers.

But of course all this, or very nearly all, is absolute speculation. The most that can be said in its favour is that such facts as we know do not seem to contradict it. So long as the " Geological Record " is so imperfect I do not see how we are to advance further.

Moreover, you will see that my speculations had reference to periods long anterior to even the Eocene. In the Eocene period nearly all the big divisions that we have now were already well established ; *e.g.* Birds, *Hesperornis* and *Ichthyornis*, one Ratite the other Carinate. If the Miocene coal-beds at Discovery Bay ever yield any Vertebrate remains they will probably be found very like things that now exist, and to judge from the analogy of botanical remains, they may be more like things of Europe and North America than those of South America or New Australia, not to say New Zealand.*

* Letter to Col. H. W. Feilden, January 7, 1886.

Thanks for your annotated copy of the Rednecked Flareup [Phalarope]; but some of the questions you ask are easier put than answered. What is "Arctic" in one longitude may be only "Subarctic" in another; and as for "Boreal" or even "Polar," the meaning assigned to them (especially the former) depends much on the fancy of the inquirer. There can't be a doubt, I think, that *Phalaropus fulicarius* has a more northern range than *P. hyperboreus*, and might be almost justifiably called "Polar"; yet it does breed, as I have every reason to believe, in the S.W. corner of Iceland, a good way short of the Arctic Circle. One does not know what to make of these things, or whether there is any use in labelling such or such a species as "Polar," "Arctic" and the like.

I wish one knew what *ordinarily* becomes of the multitudes of Phalaropes of either species when they come southward at the end of summer. Occasionally something goes wrong and then they occur here (two, if not three, Grey Phalaropes were one autumn killed in the Cam at the bottom of the gardens of this college, not 300 yards from where I am now writing, 15 or 20 years ago), there and everywhere, and ingenious persons sit down to compile a "wreck chart;" it would be more to the purpose to know the course of their successful voyages. Do they, like other *Limicolæ*, wing their way by night unseen of us to Southern waters; or do they herd with the millions of Rotches, Brunnich's Guillemots, and so on, in some parts of the Atlantic rarely visited or never by the observing ornithologist?

It is interesting to read of "record bags" of Woodcocks and so forth in Shetland or elsewhere, but depend upon it those are the exceptional events in the economy of a species, the very fact of their being "records" proves that, but (I humbly think) proves very little else.

This afternoon we had a snowstorm, and in half an hour what seemed to be nearly an inch of snow fell, but that only shows what the weather when it has a mind to be malicious can do; but it is not in the ordinary course

of things that it should occur on April 15. Don't think for a moment that I despise these inquiries; very far from it. If our excellent forefathers, whose souls I trust are with the saints, had only made similar observations, we should know more. I only object to arriving at conclusions on very slight evidence.*

There was, however, one important point about which he had no hesitation in declaring his difference from Wallace, and that was in regard to the latter's Nearctic and Palæarctic Regions. Newton found many reasons for grouping these two, with certain important modifications, into one, which he called the "Holarctic," and he had the satisfaction later of seeing his views accepted by other biologists. He lost no opportunities of acquiring information about the faunas of debatable regions, more particularly of those oceanic islands, which always had for him the greatest fascination.

One thing I beseech you to look out for. The amiable land-reformer Wallace makes the Cape Verd Islands "Palæarctic," to the humble disciple who now addresses you they seem to be "Ethiopian." May it be your lot to settle this point, and that you may settle it I pray you not to stick only to birds, delightful and always blessed as they are, but pocket all the shells, glycerine all the beetles, pin all the butterflies and other bugs, and in fact do all you can in the way of collecting down to the "lowest marines."

After behaving in this fashion the odour of sanctity which clings to your head will be enormously intensified and become a quintessence of sweet savour; but please to remember I don't care a button whether you prove these islands to be Palæarctic or Ethiopian, I only want to know the truth, though I admit it would be inconvenient if you were to find they were Neotropical; but then I can trust you, for you do not seek a reputation

* Letter to J. A. Harvie-Brown, April 15, 1903.

to be obtained only by the discovery of mare's nests, as is the fashion nowadays.*

He had much correspondence, always of a very friendly nature, with Mr. Wallace, and so far as this question is concerned, it ended with the following letter :—

Magdalene College, Cambridge,
June 17, 1894.

MY DEAR WALLACE,

I thank you very much for the paper you have sent me. I saw the title of it advertised and got a copy of *Natural Science* accordingly—reading it with interest but with no little regret, though I have no fault to find with the way in which you defend your position and attack mine. Indeed, I highly appreciate your delicacy and feel sure of your wish to do nothing but bring out the truth. I should much like to reply to you, but I really don't know when I can find time to do so. I am off on Tuesday for a three weeks' holiday beyond the reach, I hope, of posts. I will only remark now that you proceed on the supposition that my "Holarctic" Region = your Palæarctic and Nearctic—whereas the southern boundaries of this last are, in my opinion and that of several American zoologists, very uncertain—though to me it is clear that the Neotropical Region extends much more to the northward than you would have it run—and probably the same is to be said of the Indian Region. Thus a very considerable number of the genera, which you assign to your Nearctic and Palæarctic Regions, belong really to more southern areas, and by their elimination your lists would present a very different aspect. Again, too, you have omitted from your Nearctic list all the Palæarctic genera of birds which inhabit Alaska, and if I am not mistaken there are several Mammals also, making Alaska essentially Palæarctic. There are also not a few other (as it seems to me) inaccuracies, which would make no small change.

* Letter to Canon H. B. Tristram, February 16, 1889.

I have always looked on the study of Geographical Distribution as having a most important bearing on Evolution—but the greater part of this bearing would really be obscured, if your doctrines be correct. I do not know that there is much use in having “Regions” at all, but certainly there is very little if they are to be considered for the most part identical with the main division, ordinarily accepted by geographers. I have, however, a strong belief in “Faunas,” as you may see from what I foreshadowed at the end of my British Association address at Manchester some years ago.

Yours very truly,

ALFRED NEWTON.

The passage in his address at Manchester, to which allusion is made in the foregoing letter, so well exhibits Newton's broadness of mind that it may fittingly be quoted here :—

. . . I would, by way of conclusion, offer a few remarks on the aspect which the subject of Geographical Distribution presents to me. Some of us zoologists—I am conscious of having myself been guilty of what I am about to condemn—have been apt to speak of Zoological Regions as if they were, and always had been, fixed areas. I am persuaded that if we do this we fall into an error as grievous as that of our predecessors, who venerated the fixity of species. One of the best tests of a biologist is his being able to talk or write of “species” without believing that the term is more than a convenient counter for the exchange of ideas. In the same way I hold that a good biologist should talk or write of “Zoological Regions.” The expression no doubt arose out of the belief, now scouted by all, in Centres of Creation ; and, as sometimes used, the vice of its birth still clings to it. To my mind the true meaning of the phrase “Zoological Region” is that of an area inhabited by a fauna which is, so to speak, a “function” of the period of its development and prevalence over a great part of the habitable

globe, but at any rate of the period of its reaching the portion of the earth's surface where we now find it. One great thing to guard against is the presumption that the fauna originated within its present area and has been always contained therein. Thus I take it that the fauna which characterises the New Zealand Region—for I follow Professor Huxley in holding that a region it is fully entitled to be called—is the comparatively little-changed relic and representative of an early fauna of much wider range; that the characteristic fauna of the Australian Region exhibits in the same way that of a later period; and that of the Neotropical Region of one later still. But while the first two regions have each been so long isolated that a large proportion of their fauna remains essentially unaltered, the last has never been so completely severed, and has received, doubtless from the north, an infusion of more recent and therefore stronger forms; while, perhaps impelled by the rivalry of these stronger forms, the weaker have blossomed, as it were, into the richness and variety which so eminently characterise the animal products of Central and South America. I make no attempt to connect these changes with geological events, but they will doubtless one day be explained geologically. It is not difficult to conceive that North America was once inhabited by the ancestors of a large proportion of the present Neotropical fauna, and that the latter was wholly, or almost wholly, thrust forth—perhaps by glacial action, perhaps by the incursion of stronger forms from Asia. The small admixture of Neotropical forms that now occur in North America may have been survivors of this period of stress, or they may be the descendants of the more ancient forms resuming their lost inheritance. Beyond the fact that these few Neotropical forms continue to exist in North America, its fauna seems to be in a broad sense inseparable from that of the Palæarctic area, and, in my belief, is not to be separated from it. The most difficult problems are those connected with the Ethiopian and Indian (which Mr. Wallace calls the Oriental) areas; but

I suppose we must regard them as offshoots from a somewhat earlier condition of the great northern or "Holarctic" fauna, and as such to represent a state of things that once existed in Europe and the greater part of Asia. To pursue this subject—one of most pleasing speculation—would now be impossible. I pray you to pardon my prolixity, and I have done.*

* Presidential Address to Biological Section, British Association, Manchester, 1887.

CHAPTER XI

GILBERT WHITE AND OTHERS

IF it can be said that Newton's life was influenced more by any one man than by another, that man was unquestionably Gilbert White, of Selborne. We have his word for it that he had the greatest admiration for White from his very boyhood, and in his "Journal," of June 26, 1844, he records the fact that "To-day is the anniversary of the death of Gilbert White, 1793"—a boy of fifteen does not lightly take notice of an event of that kind. To use a somewhat old-fashioned and, perhaps, out-of-date expression, both were of "gentle birth," and he often quoted and commented on Gilbert White's expression in one of his letters to Robert Marsham, "I was born and bred a gentleman and hope I may be allowed to die such."

The smallest detail connected with the life and writings of Gilbert White always had the deepest interest for Newton, and he never lost an opportunity of adding to the meagre facts recorded. During many years before its publication in 1877 he assisted in the preparation, and read all the proofs, of the edition of "Selborne" edited by Professor Thomas Bell, F.R.S. That edition contained nearly a hundred letters of Gilbert White which had never been published before, and was thus immeasurably superior to previous editions, but Bell had made a somewhat perfunctory use of the mass of material lent him by White's descendants. Newton was especially disappointed that so little information was recorded of White's brothers, Thomas, Benjamin, and

John ; the last was chaplain at Gibraltar, of which place he wrote a zoology that was never printed, and was for many years a correspondent of Linnæus. Another blemish, to Newton's mind, on the book was the omission, due to what he considered Professor Bell's "prudery," of many interesting letters. The language of the eighteenth century was somewhat more free than that of the nineteenth, and though White never used expressions which could be called coarse even by the most fastidious, he spoke and wrote openly and naturally in the manner of his time. In spite of protests, Professor Bell omitted many quaint and even amusing passages, lest they should bring a blush to the cheek of the young lady of his day.

Old Bell has at last brought out his Edn. of "Gilbert White," the second volume of which contains some charming letters and shows him to have been (what I always suspected he was) a naturalist Mr. Pepys. But Bell has been foolishly prudish, and because there were certain expressions rather broader than are nowadays used he cut them out unsparingly. *E.g.*—there was a certain Dr. Chandler, a friend of White's, who being on the Continent at the outbreak of the French Revolution, was driven from pillar to post, but at length with his wife took refuge at Selborne. The first thing the good lady did was to be brought to bed, and dear old G.W. writes to a friend on the event that the Dr. was infinitely diverted because he could not determine in which country of Europe his infant was begotten. This Bell has struck out. I saw the passage in the proof, and begged it might remain ; but to no purpose. The same with a passage in which White, describing the effects of an exceeding cold winter and protracted spring, observes of his atteruated haystacks that it would have been creditable to the last two young ladies he married to their swains had their waists been as thin ! This prudery is disgusting.*

* Letter to Lord Lilford, February 10, 1878.

Later, in answer to a question of Mr. Holt White as to the publication of certain passages in the letters of John Mulso, Gilbert White's contemporary and lifelong friend, he expressed himself to much the same effect:—

Far be it from me to say what the owner of these letters should or should not print; of course, I know that men will write many things that should not be printed. I protested most vehemently (only alas! too late) against certain passages that Wheatly printed for the first time in his Edition of Pepys, which render it impossible to leave about the volume that contains them. But in my opinion there is nothing in Mulso's letters that might not appear; there are expressions showing a coarse mind, which I am sure was in great contrast to Gilbert White's, but nothing worse, and if it is said that certain passages have been suppressed people will put a harsher construction on Mulso's character than they would if the passages were in evidence. More than that they will wonder how Gilbert White could live in affectionate friendship with such a man, so that his character suffers also. *Puris omnia pura* is a good motto, and if one did not believe in it one has no business to teach Zoology.

No doubt that people in the 18th century did things openly that they are now ashamed of doing, and also that ideas of what a parson might or might not do were then very different from what they are at the present day; but I greatly doubt our being better than our forefathers, who did not brag of their virtues as we do; indeed, I should think that Pharisaism had greatly increased in the last fifty years.*

There were other editions of Gilbert White's book for which Newton could find no good words to say, and among the worst offenders was the late Mr. Grant Allen.

. . . The death of the editor, which almost coincided

* Letter to R. Holt-White, November 17, 1906.

with the issue of the book, makes the reviewer's task peculiarly ungrateful, since with the greatest respect for Mr. Allen, it must be deliberately said that if there were a work off which he ought to have kept his hands it was the "Natural History of Selborne." How little he could understand the author, or enter into his feelings, and it will be admitted that no man can properly edit a book without being imbued by its spirit, may be seen by a passage in his Introduction (p. xxxi) where, wholly unmindful of what is shown by the work itself or the portions of the author's correspondence printed by Bell, Gilbert White is represented as settling down at Selborne "to a placid bachelor existence," and "being a celibate Fellow" (how many Fellows were there in those days, and for long after, who were not celibate?) "he gave himself up almost entirely to his favourite *fad* of watching the beasts and birds of his native country." If a word could be found to raise a feeling of disgust among the thousands of admirers of Gilbert White, it is that which is above italicised. Who but a vulgarian could conceive of White's lifelong devotion to the study of Natural History being designated a "*fad*"? And yet Mr. Allen wrote himself a naturalist! How much he knew of the methods of observing naturalists in general, and of White's in particular, is shown by another passage in the same Introduction (p. xxxiii). Describing the lawn and garden at Selborne, this editor is pleased to say: "Here the easy-minded Fellow of Oriel and curate of Faringdon could sit in his rustic chair all day long, and observe the birds and beasts as they dropped in to visit him." What the fellowship and curacy have to do with the matter is not apparent, but had Mr. Allen any experience of observational natural history, he would have known that beasts and birds do not "drop in" to visit people sitting all day long in chairs, rustic or otherwise; while he must have read Gilbert White's writings to very little purpose to think that was the way in which the observations, so inimitably recorded, were taken. There is hardly a bit of armchair work in the whole of them. . . .



Grant Allen's edition contained the marginal notes made by Samuel Taylor Coleridge in his own copy of the book. "These Marginalia are sixteen in number, and by how much the world is better for their publication it is not easy to say, since anything more inane and commonplace than most of them cannot well be imagined." Newton sarcastically suggested the issue of a supplement to the New English Dictionary to contain what Mr. Allen called Coleridge's "certain yet hitherto unknown etymology" of the word gossamer, as "God's Dame's Hair," which illustrates the old notion well expressed by the saying of an expert, that "the less authority there is for any derivation the more glorious is the guess!" (W. W. Skeat *in litt. ad hoc*).

Another edition of Selborne which appeared at about the same time was that of Dr. Richard Bowdler Sharpe, with ten pages of introduction by the Dean of Rochester, "a part of the performance which may be dismissed with the remark that more than half of it would serve as a prelude to almost any kind of book." One of the worst features of that edition is that it contains imaginary portraits of Gilbert White, of whom one of the best known personal facts is that he would never sit for his portrait. This roused Newton's just anger, and he described the figures as "offensive impertinences," and—

as such they will properly be resented by all lovers of his memory. Moreover they all express one and the same falsification, proving the draughtsman's ignorance of his victim's personal appearance. In every one Gilbert White is represented as "wearing his own hair," to use the old phrase. Yet we have undoubted proof that he always wore a wig, as did nearly all the respectable gentlemen of his day. In 1752 we find him paying forty-five shillings for a "feather top'd grizzle wig" from London; and in 1783 his niece wrote to him from

London, "Mr. Grimble has sent your wig," while the humorous lines, ascribed to him by Bell—

Ye worthy friends in Abchurch Lane,
Who do our noddles thatch,
Send me a wig, but not too big,
With care and with despatch,—

which are said to have formed one of his orders, tell of this wig-wearing as a constant habit. However these objectionable caricatures may suit some debased tastes, they represent him as something between a clerical fop and a fool. . . . It may be added that all are equally false and equally vulgar. *

Though Newton never edited "Selborne" himself—there is, indeed, no reason to suppose that he even contemplated doing so—he spared no time and pains in helping others who were writing about White or in trying to add to our knowledge of the naturalist or to explain doubtful points in his notes and letters. His article on Gilbert White written for the "Dictionary of National Biography" contains a large amount of information which was at that time unknown. This was to a great extent due to the help he received from Mr. Rashleigh Holt-White, the living head of White's family, who was at that time preparing the life of his great-grand-uncle, and was in possession of all the family papers. This article contains Newton's considered opinion of Gilbert White as a naturalist, and as it was too long to be printed completely in the published volume, a part of it may be quoted here.

That White's "Selborne" is the only work on natural history which has attained the rank of an English classic is admitted by general acclamation, as well as by competent critics, and numerous have been the attempts to discover the secret of its ever-growing reputation. Scarcely two of them agree, and no explanation whatever

* *Macmillan's Magazine*, July, 1900.

offered of the charm which invests it can be accepted as in itself satisfactory. If we grant what is partially true, that it was the first book of its kind to appear in this country, and therefore had no rivals to encounter before its reputation was established, we find that alone insufficient to account for the way in which it is still welcomed by thousands of readers, to many of whom—and this especially applies to its American admirers—scarcely a plant or an animal mentioned in it is familiar, or even known but by name. Goldsmith's "Animated Nature" was begun in 1769, two years after the commencement of White's correspondence with Pennant and in the very year in which White first wrote to Barrington. That book appeared in 1774, when the correspondence was all but concluded and the monographs were ready for the Royal Society. One author could not have been influenced by the other. Goldsmith's work was one of the most profitable of his literary undertakings, and was at once popular beyond anything of the kind before published; but no one reads it now, and, what is more, no one could conscientiously edit it without having to add notes that would expose the author to ridicule on one point after another. He could only translate and travesty Buffon, and the man who on so many subjects "wrote like an angel" could not touch the works of Nature without deforming them. Yet none can deny there is a charm, an old-fashioned fragrance even, in Goldsmith's "Animated Nature," the only work of that age with which White's can be compared. But taking the latter's "Selborne," of the hundreds of statements therein recorded, the number which are undoubtedly mistaken may be counted almost on the fingers of one hand. The gravest is perhaps that on the formation of honeydew (Letter lxiv. to Barrington); but it was not until some years later that the nature of that substance was discovered in this country by Curtis (*Trans. Linn. Soc.*, vi. 75-91), and was not made known until nearly a twelvemonth after its discoverer's death; while we have editor after editor, many of them

well-informed or otherwise competent judges, citing fresh proofs of White's industry and accuracy. That he was a prince among observers, nearly always observing the right thing in the right way, is a very great merit ; but not a few others have been as industrious and as accurate without attaining the rank assigned to him. Good-natured reviewers are apt to say of almost any new book on observational natural history that the author has studied in White's school, and to prophesy the success of a work which they declare has been written on the model of "Selborne." Such an author has frequently the gift of writing agreeably, and has occasionally been a fair naturalist, though too often there is a tendency to observe the wrong thing or in the wrong way ; but the best of these men does not come near White. He had a genius for observing, and for placing before us in a few words the living being he observed. That, in addition to his excellence in this respect, he was not only all that was meant by the old phrase "a scholar and a gentleman," while that he was a philosopher of no mean depth, is also evident ; but it seems as though the combination of all these qualities would not necessarily give him the unquestioned superiority over all other writers in the same field. The secret of the charm of his writings must be sought elsewhere ; but it has been sought in vain. Some have ascribed it to his way of identifying himself in feeling with the animal kingdom, though to this sympathy there were notable exceptions. Some, like Lowell, set down the "natural magic" of White to the fact that, "open the book where you will, it takes you out of doors ;" but the same is to be said of other writers, who yet remain comparatively undistinguished. It may be certainly averred that his style, a certain stiffness characteristic of the period being admitted, is eminently unaffected, even when he is "Didactic," as he more than once apologises for becoming, and the same simplicity is as observable in his letters to members of his family, which could never have been penned with the view of publication, and have never been retouched, as in those

which he addressed to his stately correspondents, Pennant and Barrington, for use in their works. Then, too, there is the complete absence of self-importance or self-consciousness. The observation or the remark stands on its own merits, and gains nothing because he happens to be the maker of it, except it be in the tinge of humour that often delicately pervades it. The beauties of the work, apart from the way in which they directly appeal to naturalists, as they did to Darwin, grow upon the reader who is not a naturalist, as Lowell testifies, and the more they are studied the more they seem to defeat analysis.

Mr. Holt-White's help in the article for the "Dictionary of National Biography" was amply repaid by Newton, when the former was writing his "Life and Letters of Gilbert White." As recorded in the Preface, "To Professor Newton, my obligations are many and great. In addition to much valuable advice, he has been good enough to send me the natural history notes which appear with his initials." After a visit which Mr. Holt-White paid to him at Magdalene at that time, he wrote :—

Needless to say that your visit gave me much pleasure, and I hope that it may not be your last. I look on the entertainment of you as a duty to G.W., from whom I have derived more advantage than from any other naturalist, and it would take a long while to pay off that debt.

He took exception to the description in the Preface of White as "remaining single" :—

I think "a bachelor" or "unmarried" would be better than "single," which seems to imply *singularity*, and I being in that condition demur to such an implication! Some people seem to forget that we are all born "single," barring, as the Irish would say, twins of both sexes—so that it is the natural unsophisticated

state of man. For the rest, there is really nothing to remark upon. It appears to be as good as good can be. The Shakespearean quotation is very happy, and altogether it is what G.W. and his contemporaries would have called an "elegant piece." But I must not omit expressing to you my thanks for so kindly and fully acknowledging such services as I have been able to render to you, services which I must say it has given me very great pleasure to afford—if only in regard to the debt I incurred through your valuable assistance, when I was writing the article for the "Dictionary of National Biography."

It was not only on matters of Natural History that his advice was sought, but on questions also of the publication or otherwise of more personal letters:—

Now I come to the "Molly" letters, about the advisability of printing which you asked my opinion. I have read them attentively and am come to the conclusion that, owing to my bias, my opinion on the subject is worth nothing! I do so dread the notion that many persons, not at all adverse critics, might think that one could have *too much* even of Gilbert White! I think before printing them *in extenso* you ought to consult some one else, who would be a fairer judge than myself. I am afraid people would resent the solicitude with which the writer regularly orders codfish and desires his brother to draw the interest of the Long Annuities! Yet in most of the letters there is a playful tone, which *to me* is highly diverting and agreeable. Extracts might certainly be printed without any doubt, but the making of them would require very careful selection, and that by a competent man. I wish I knew one to recommend, but I must plainly say that I don't. If you should find a competent judge to say "print the whole," I should be only too glad, but it is what I dare not trust myself to say—because I know myself to be such a strong partizan—whiter than the whitest of Whitists. I can't put it more concisely.

The "Molly" letters, with a few exceptions, were included in the "Life," which was published in two volumes in 1901.

I think you will like G. White's "Life."* It ought to have been, and might perfectly well have been, got into one volume, and there are a few (very few) blemishes in it. People ought to buy it, but I suppose the public which takes I don't know how many thousand copies of an "Englishwoman's Love-Letters" will not have it. The book is too matter-of-fact for "gush," and as to the reviewers they know nothing of the "inwardness" of "Selborne," and in their ignorance make absolute fools of themselves, when criticising this book.†

Newton had little fault to find with the substance of the book, but the covers were adorned with a Swallow unlike any bird known to naturalists, which drew lamentations from him :—

The green binding reminds me of the Willow Wren and is therefore very appropriate, but why, oh why did not Mr. Murray get somebody who knew what a Swallow was to design the figure on the back? They are caricatures of that blessed bird, as terrible to behold as those of G.W. in another edition! And a Swallow is such a lovely bird!

And later on :—

If the Swallows on your binding were strictly conventional, I should not mind them. The Swallows on a plate don't spoil my dinner, but your binders have attempted realistic Swallows and have disgracefully failed. The designer (I will not call him draughtsman even) ought to have a dozen or two thrust down his throat. That would be an "object lesson" teaching him what a bad swallow means.

* "The Life and Letters of Gilbert White." By Rashleigh Holt-White. Two vols., London, 1901.

† Letter to Thomas Southwell, July 3, 1901.

In the course of his preparation of the article for the "Dictionary of National Biography" Newton had the opportunity of reading the letters to Gilbert White of John Mulso, who was White's intimate friend and correspondent during more than forty years. Unfortunately, Mulso or his descendants had destroyed Gilbert White's letters to him, but his own letters are full of interesting observations and throw much light on the life and character of his friend. They are now in the possession of a collateral descendant of Gilbert White, the Earl of Stamford, whose father, the late Earl, lent them to Newton.

Magdalene College,
June 13, 1898.

DEAR LORD STAMFORD,

. . . I cannot refrain from expressing to you the extreme gratification that the opportunity of examining these volumes * has given me. Though my hopes had been high, their fulfilment far exceeded any anticipation, and it is very long since anything so interesting has passed into my hands, while I can but wonder that these papers have remained so long unpublished. I desire to offer you my most sincere thanks for the pleasure I have derived from the reading of these letters, to say nothing of the wonderful light which they reflect upon Gilbert White's life, and their consequent utility to me in the task I have undertaken. Though I certainly had not hitherto neglected any means of informing myself concerning him, I feel that he had been a man comparatively unknown to me. I read through all the letters, some of them several times, and there are many which I should like to read again. I earnestly hope they may be soon printed, and just as they stand, though there are a few coarse passages. One does not leave them with an exalted opinion of the writer, but there is nothing to affect the estimable character of Gilbert

* "Mulso's Letters."

White who, it is evident, not unfrequently must have administered a reproof to his correspondent, and that is possibly a reason why his own letters have disappeared.

Yours very faithfully,

ALFRED NEWTON.

Lord Stamford and Mr. Holt-White eventually decided to publish Mulso's letters, and Newton's advice was again sought as to what should or should not be printed.

When the book appeared in the following spring, it gave Newton profound pleasure to find that the volume was dedicated to himself, a compliment which he acknowledged in the following letter.

March 20, 1907.

MY DEAR HOLT-WHITE,

I have just received the precious volume and was congratulating myself on its neat and trim appearance—thinking how easy it would be to convey the like congratulations to you, when it opened of its own accord immediately after the title-page, and the Dedication was in full view. This alters the case, and now my duty is more than doubled. It is most kind of you and your noble cousin to have thought of me in this connection—yet if an almost unbounded reverence for the character and especially the example of your great-grand-uncle gives a man a claim to that distinction, then your selection of me is justified—for I doubt whether any one has ever entertained so strong a feeling towards Gilbert White as I have from my very boyhood.

Be assured that I consider this one of the prettiest compliments that have ever been paid to me, and believe me with the sincerest thanks,

Yours very truly,

ALFRED NEWTON.

It may truly be said that Gilbert White was one of the very last interests in Newton's life. Only a few days

before his death, writing to a correspondent who had asked him where White had been born, he replied :—

There is Gilbert White's own authority for his having been born at Selborne Vicarage. In one of his poems he has :—

“Nor be the Parsonage by the Muse forgot,
The partial bard admires his native spot.”

I believe I was the first to point this out.

So far as is known, he visited Selborne once only, in 1874.

Last week I went on a pilgrimage with A. C. Smith to Selborne, and was charmed with the beauty of the place. Unluckily, old Bell was not at home.

It is worth recording that he possessed Yarrell's copy of the first edition of “Selborne,” and Gilbert White's copy of Ray's “Pisces.”

Hardly inferior (in Newton's opinion) to Gilbert White in having a lasting influence on British Ornithology was Thomas Bewick, whose “Land Birds” appeared in 1797, the “Water Birds” in 1804.

Now there is really a chance for you, the long expected autobiography of Bewick is published. Sit down and write us a notice of it for the *Ibis*; surely you can knock off sixteen of our little pages on a subject which must interest you as a Northumbrian, an ornithologist, and an admirer of all true men? I should think Bewick has done more to instil Ornithology in boys' hearts than “any other man,” not excepting Gilbert White, for there is many a lively lad who has been attracted by those wonderful wood-cuts, which at once appealed to his senses, and who would never have had the patience even to skim over “Selborne.” You are the man to do it, you live on the spot, have talked with dozens of people who knew the old fellow well, and must have lots to say about him, of your own picking up.

Pray now, set to work, or else when you come to Cambridge look out for squalls. I shall most assuredly put every local member of the B.O.U. up to sending you to Coventry or Corinth, I mean the city of the seceders, not of the two seas, or some other very disagreeable place if you do not.*

Of the older naturalists Newton had the greatest reverence for Willughby and Ray, of whom he wrote ("Dictionary of Birds," p. 7):—

‡ The foundation of scientific Ornithology was laid by the joint labours of Francis Willughby (born 1635, died 1672) and John Ray (born 1628, died 1705), for it is impossible to separate their share of work in Natural History more than to say that, while the former more especially devoted himself to Zoology, Botany was the favourite pursuit of the latter. Together they studied, together they travelled, and together they collected. Willughby, the younger of the two, and at first the other's pupil, seems to have gradually become the master, but dying before the promise of his life was fulfilled, his writings were given to the world by his friend Ray, who, adding to them from his own stores, published the "Ornithologia" in Latin in 1676, and in English with many emendations in 1678.

Writing (April 24, 1906) to Mr. T. Whitaker, who was then preparing his "Birds of Nottinghamshire," Newton reminded him to pay tribute to the memory of Willughby.

There is, however, a much greater Nottinghamshire ornithologist [than Wolley] of whom you should give some account, and that is Francis Willughby of Wollaton (born 1635, died 1672), to whom justice, I think, has never been done, nor has his life been properly written; for he was so overshadowed by his friend Ray, who was his senior by a few years only, but survived him and saw to the publication of his "Birds" and "Fishes."

* Letter to H. B. Tristram, July 3, 1862.

. . . Anyhow in your book you must not neglect Willughby—the earliest ornithologist in England after Turner.

When the “Willughby Society” was established in 1879, Newton with Osbert Salvin and Dr. P. L. Sclater formed the committee of selection. The object of the society was the reprinting of rare ornithological works, and in return for an annual subscription of one pound the members received a copy of each of the reprints. The first to be produced was Tunstall’s “Ornithologia Britannica”; this was followed by Sir Andrew Smith’s paper in the *South African Journal, Reports* of his Exploring Expedition, and other rare works. Unfortunately some trouble arose between Mr. Tegetmeier, the Director of the Society, and a lady copyist, with the result that the Society came to an untimely end.

Of the ornithologists of the middle of the nineteenth century probably the most widely known was Mr. J. Gould, whose “Birds of Europe” and “Monograph of the Humming-birds” and countless other volumes were eagerly bought. The books were popular on account of the coloured illustrations, which were better than anything of the kind produced up to that time, but it does not appear that Gould was himself a very serious ornithologist.

By the way, Gould always sends me his “Birds of Great Britain” to look over for him, and the utter ignorance they sometimes betray is amazing. He has no personal knowledge of any English birds, except those found between Eton and Maidenhead, and about these species he fancies no one else knows anything. It is most amusing to see how anxious he is to avoid committing himself about Darwin’s theory. Of course, he does not care a rap whether it is true or not—but he is dreadfully afraid that by prematurely espousing it

he might lose some subscribers, though he acknowledged to me the other day he thought it would be generally adopted before long.*

Another very popular naturalist of a rather later period than Gould was Mr. Frank Buckland.

I am afraid I know of no one who could help you in your Trout inquiries. I never had any taste for fishing and have no piscatorial or ichthyological correspondents, though I fully appreciate the interest of your observations. It is a pity that Day published them in such a place as *Land and Water* and gave that ignorant fellow Frank Buckland the opportunity of introducing them. By the way, I see from Saturday's No. that he has just become aware of the existence of Bacteria—which he calls "brutes!" †

The expression quoted in the letter above was less than fair, for however little of a scientific man Buckland may have been—and that was owing to his lack of a scientific training—there have been few people during the last fifty years who have done more than he did to encourage the study of Natural History in this country. He was always on friendly terms with Newton, who wrote of him afterwards: "... Buckland, for whom personally I had much regard. His great mistake was that he believed people when they told him he was a naturalist, while he was wanting in every essential of a naturalist, except zeal."

Thomas Edwards, the "self-made" naturalist of Banff, whose life was written by Smiles, corresponded frequently in the 'forties and 'fifties with Newton, who often spoke of him with affection. Mr. Harvie-Brown proposed to put a portrait of Edwards with those of others on the title-page of his "Fauna of the Moray Basin."

* Letter to Edward Newton, April 25, 1864.

† Letter to J. A. Harvie-Brown, May 10, 1880.

Your proposed medallion title-page is a very good idea, and I would submit that you should put old Thomas Edwards among those you may please to honour. I have got a good many of his letters written to me in the 'fifties. I don't know whether you would care to have them, but if so they are at your service, and I think I could lay hand on them without much trouble.

Smiles made such a ridiculous mess of his Memoir of him, that I should be glad to see a proper notice of the old man's services inserted, such an one as I am sure you would write. His enthusiasm led him into several egregious misstatements (to put the matter mildly) which it is hard to overlook ; nevertheless the man was without doubt a born naturalist, and did a little good in the bird and beast way. I think he is worthy of a place alongside of St. John and Gordon, to say nothing of Thornton.*

Newton's opinion of Richard Jefferies, whose books achieved a considerable popularity at one time, was not a favourable one. Considering him as a scientific man, Newton was right, for Jefferies' books contained many inaccuracies and no original observations. The novels did not add greatly to his reputation.

You must go elsewhere for details of Jefferies. Several books have been written about him. He was an unhappy man, with bad health and a genius for "word painting," which took with the public. He tried to write novels, but they were invariably scouted ; yet such is the ignorance of people in regard to Natural History that his books about animals were read with rapture, though they were every bit as bad as his novels. The greater part of the poor wretch's life was spent in abject misery, as he was too proud to let his friends know that he often had not enough to eat ; at least so I have heard say. I believe at the last he was better off, but then it was too late. I regard the poor man with

* Letter to J. A. Harvie-Brown, February 11, 1892.

great commiseration, but there is an utterly false tone (as it seems to me) in all his writings.*

Another naturalist of the same period, with whom Newton came much into contact, but of a different quality from some of those others already mentioned, was Mr. Henry Seebohm, who had made a considerable fortune at Sheffield, and late in life devoted his energies to Ornithology. He made two journeys to Siberia, in 1875 with Mr. Harvie-Brown, and in 1877 alone, and published two volumes describing his voyages and discoveries. Newton's first meeting with him was in 1877, when he went to Sheffield to see Seebohm's collection of eggs.

Early in December I took train to Sheffield and gratified my eyes with the spoils which the adventurous Seebohm reaped in Siberia. And very great they are for an Arctic harvest, interrupted as it was by two shipwrecks in the river Yenesei. Each of these disasters cost him a week's diversion from his proper pursuits, and occurring, as they did, in the height of the short summer, they seriously crippled his operations. On the whole he thinks himself fortunate in saving what he had got, and save it he did, every egg-shell. That is a wonderful man, and it is a pity he is so very rough in his ways. I take it he will prove himself a leader now that he is fairly come to the front. At the Zool. Soc. one evening he described his expedition in a way better than anything I have ever heard there before; just saying the right thing, neither too much nor too little, and keeping up the interest of his audience (a good one) for a whole hour most admirably and without the slightest apparent effort. Huxley, who heard him somewhere else, is said to have pronounced him a born lecturer; and he ought to know the necessary qualifications if any one does.†

* Letter to G. E. H. Barrett-Hamilton, September 12, 1904.

† Letter to Lord Lilford, January 7, 1878.

If Seebohm had been content with his fine record as a traveller and collector, all would have been well, but he ventured without a sufficient equipment into the thorny questions of classification, and, after perpetrating some rather glaring inaccuracies, he inevitably fell foul of Newton.

It is not so much that Seebohm is no scholar, but it is his way of making reckless assertions that is so reprehensible. You may remember in the *Ibis* for July last he launched out into a tirade against people in general for having neglected Pallas's "Zoographia," concerning which he propounded a long story absolutely without truth and (as I cannot but believe) wholly of his own invention. When I told him, as I did privately, how the matter stood, and lent him Von Baer's report (of which he had never heard), he made a most shuffling attempt in the next number to get out of the scrape. It is no part of my business to set other people right or show up their "blunders" (his own favourite word), so long as they keep clear of me; and as this matter did not in any way concern me, I let him alone. When, however, it came to a fresh attack on me based on a mare's nest discovery, I thought it time to notice it.*

He is a man who, having made a lot of money at Sheffield, has retired from business, and taken up Ornithology. He has great force of character and is a fluent speaker, qualities which have helped him in the world and dispose some people to think him a great man. But his writings show him not to be clear-headed or logical. I knew him to be shallow and ignorant as regards Ornithological literature, but until last week I had given him credit for knowing birds when he saw them. To my great surprise my eyes were opened. I was going to London, and, just before starting, there arrived a small box of bird skins from Portugal which the sender asked me to determine for him. As I knew

* Letter to Col. H. W. Feilden, March 16, 1883.

the species were all *Sylviidæ*, in which family, as you are aware, Mr. Seebohm has attained great critical reputation, I thought I would take them with me to town, open the box there and compare them with his series, which I had not seen for several years. To my infinite amazement I found that he could not recognise some of our commonest English birds. He insisted on a common Sedge-Warbler being a Reed-Wren, and notwithstanding the wonderful rules he has laid down for infallibly distinguishing the Willow-Wren and the Chiffchaff he was no better than anybody else in determining them, when it came to actual specimens.*

In spite of the hard things which Newton wrote of Seebohm, they continued perfectly friendly until the death of the latter in 1895.

* Letter to Rev. A. C. Smith, November 30, 1883.

CHAPTER XII

METHODS OF WORK

It will have become apparent to the reader who has followed these pages so far that Newton was an earnest seeker after the truth in all things, and, so far as it was humanly possible, he was never satisfied with anything less than the completest accuracy. From quite early days he was constantly receiving eggs from people, who believed, in their enthusiasm, that they had discovered some rarity, and wished for Newton's confirmation.

For the last thirteen days I have been wrapped in contemplation (and a great-coat) with respect to the egg you have entrusted to my care. "Who steals my purse," etc. (*vide* Shakespeare). Morris cracked the shell of it, what if I totally demolish its reputation and good name? I am more than ever disposed to agree with the anonymous reviewer in the *Ibis*. The office of Devil's Advocate is a particularly ungracious one. I know perfectly well that it is the habit of collectors to put their implicit confidence in evidence on which they would refuse to hang the veriest cur which ever merited the decoration of the tin pot.

After a really serious and steady course of observation I have deliberately come to the conclusion that in your egg marked *Nucifraga caryocatactes* I can detect no character which may not be found in a Magpie's. At the same time I am fain to confess, as I said in the hasty scrawl when I last wrote, that I have not got a Magpie's egg with which to match your pattern. In size and

shape, and in colour of ground and of markings, and in the forms of these markings I can equal it in unquestionable Magpie's, and this from by no means a large series. Had I a *good* series, say 500 specimens, I might possibly find its exact double. Not that this is saying much. But I would tell you how your argument differs from that of Wolley's in regard to the Smew's eggs. He did not rest satisfied with the story of the people concerned, or even with the appearance of a stuffed Smew's skin with "hatching spots" under her wings, the only Smew he had ever seen in Lapland, or with the eggs before him corresponding with what he had previously ascertained from a really trustworthy and tried man to be their true appearance. With all this, and even with the general dissimilarity between the supposed "Unilo's" eggs and the ordinary form of Wigeon's, he was not satisfied; not until he had discovered a minute but constant difference which held on one side with his three Unilo's eggs and on the other with his three hundred Wigeon's, did he allow himself to believe that he really possessed genuine Smew's eggs. It was this one point of evidence of a positive nature, and about which there could be no mistake even with closed eyes, supervening on all the presumptive testimony which makes the case of the Smew one so excellently proved.

Now I really think in the case of your Nutcracker's it is by no means a statement unfavourable to your view, to say that as *far as our knowledge goes* there is nothing in the appearance of the egg to afford any evidence against the Nucifragine theory; but I do believe that the fairest statement would be to put it that there is no perceptible character in the egg which is not also possessed by many Magpie's.*

For many years I have been trying to impress upon people the necessity of identifying the eggs they take at the only time and under almost the only conditions which render identification certain. If they will not do this

* Letter to H. B. Tristram, April 25, 1860.

they have no right to expect that others will be at the trouble of making an examination which seldom leads to a satisfactory result, and is therefore generally but a waste of time. In ordinary circumstances it surely may be looked for that a man when he has found a suspicious nest should lay himself out to see the owner, and if he cannot do that satisfactorily he should refrain from taking the eggs. It is notorious that this is absolutely necessary in the case of Ducks' nests, and the subsequent examination of the down is a very poor substitute for the evidence that the finders may in most cases with a moderate amount of prudence obtain on the spot. The cases when this cannot possibly be done are comparatively rare.*

In 1906 two young ornithologists found the Scaup Duck breeding in the Hebrides and presented Newton with eggs for the Cambridge Museum. He wished to include a record of the find in the "*Ootheca Wolleyana*," but in spite of the most careful observations of the bird made by the finders of the nest, he was unwilling to admit the authenticity of the eggs without a further identification of the down:—

Hurrah! Victoria!! Hallelujah!!! Banzai!!!!
Hooroosh!!!! I must express my exultation in many languages.

Yesterday I placed in Gadow's hands six glass-topped boxes containing down of (1) Eider-Duck; (2 and 3), Black and Velvet Scoter; (4) Dun-Bird; (5) Tufted Duck, and (6) Kinnear's Hebrides nest of 11/6/06. To-day Gadow brought me a lock or "spray" of each between two slips of glass, and I waited with all the patience I could muster for the verdict. The Hebrides' down would *not* match any of the foregoing. Then, for the first time, I produced your little packet of Scaup's down from Sutherland and he put a lock of it between

* Letter to J. A. Harvie-Brown, December 2, 1886.

two other glass slips, immediately exclaiming "That is the same as the Hebrides specimen!" Can anything be better? You will observe that this investigation (if so it may be called) was carried on with the utmost fairness. All he knew was that I wanted, if possible, to determine the "unknown quantity," i.e. the Hebrides down. I was careful not to give the slightest indication of what I should like the result to be, and yet you see it has come out exactly as I should like it to be, and all to the credit of Kinnear, Bahr and Co. May the angels take charge of them and their shadow never grow less. I am so glad on their account.

You can't realize how this business has been afflicting me, for I had made up my mind to omit Kinnear's eggs from the "O.W." unless the down examination were clearly in favour of their being Scaup, and I know what a serious blow it would be to him if I did so.

Gadow, though he has no doubt on the matter, admits that the differences between these downs are to a great extent beyond description; but curiously enough the Scaup's is distinctly darker (almost black with a whitish centre, as they all have) than Tufted Ducks' (which is ashy-brown) or any of the others. *Anas nyroca*, which we afterwards tried, comes very near it; but of course that is out of the question.

In giving all these different downs to Gadow to try, my object was, of course, not to mislead him, but to train his eye to differences which at first sight are hardly apparent, and no doubt it is only a trained eye that can detect these almost minute differences. He was positive about the Hebrides down being different to any of the others, knowing nothing more about it than that I wanted it determined if possible; nor did he know when I handed him the precious lock of Scaup's from the little bit you sent me that I expected or thought it possible that they should be the same.

Afterwards we put them all under a *strong* power (microscope), but that did not help us much. It chiefly showed that the old downs become brittle and lose the

abortive hooklets ; but the structure seems to be much the same in all.*

He often quoted his old friend Hudlestone, who "used to declare that an identified duck's was the most valuable of eggs—in consequence of which he got the nickname of 'The Identified Duck' (for we valued him)—and there is a good deal of truth in it."

When he was collecting materials for his "Bustard in Britain" (a book that never saw the light), any reference to the bird in however obscure a book was traced, if possible, to its source and its accuracy or otherwise tested.

I have lately been much interested by corroborating in a minute point the story of an old man, one Chafin, who in 1818, being then about eighty-four years of age, published a book on Cranbourn Chase, wherein he says that in November, 1751, he saw and shot at near Andover 25 Bustards, and winds up by saying "In two or three days after I set off for Cambridge" (to account for his not renewing his attempt on their lives). A reference to the Residence book of Emmanuel College, at which Chafin was then an undergraduate, shows that he returned on the 4th Nov. 1751, so that his encounter with the Bustards would have been on the 1st or 2nd of that month and year ! †

Questions of all kinds more or less connected with Natural History were constantly sent to him, such as the death-song of the Swan, the winter transformation of the Cuckoo, the hibernation of Swallows, and so on. One of these hardy annuals was the Great Black Woodpecker, which was from time to time reported as having been seen in some part or other of Britain, but never to Newton's satisfaction.

* Letter to J. A. Harvie-Brown, October 7, 1906.

† Letter to Col. H. W. Feilden, December 8, 1884

Picus martius seems determined to be the Sea Serpent of British ornithologists ! He is always careful to keep out of the way of any observer of experience, and I think that until he does reveal himself to some one who is able to kill him or knows him well by sight it is best not to think too much of his supposed apparitions.*

I read in some paper of the Black Woodpecker, and a particularly lame story I thought it. I don't believe that Lilford ever turned out any birds of this species, for he, if any one, well knew it needs fir woods to live in, and there are none in his neighbourhood. Beside that I think he never had any number in his possession (I remember one). The tendency to construct myths is something wonderful ! Look how many have grown up about the Gare-fowl, and many more there will be. It would never surprise me to read that he had the bird—perhaps half a dozen birds—alive on one of his ponds at Lilford ! †

On another occasion a celebrated literary personage proclaimed his belief, accompanied by second-hand evidence, in the well-worn legend of the mother Viper swallowing her young.

Mr. ——— for aught I know may be another Vesalius, John Hunter, or Von Baer ; but it is my misfortune not to have heard of him before, so far as I remember. There are some subjects that I never discuss, such as Transubstantiation, Evolution, Free Trade, and the Hibernation of Swallows. This old, old story belongs to the same category. I have made up my mind on each and all of them, and in respect of them when anybody smites me on the one cheek, I hold my tongue, if I do not quite fulfil the Christian precept of turning to him the other also. Some years ago I most unintentionally got myself into a mess along of some Manx Cats, and came in for a great amount of abuse. I at once let those interesting animals alone, and, as I felt none the

* Letter to J. A. Harvie-Brown, December 1, 1873.

† Letter to T. Southwell, December 22, 1902.

worse since from doing so, I can only recommend your following the example in respect to the Vipers. This is really all I have to say on the subject; when some one is able to show by what means the process of digestion in the mother-vipers is arrested, it may be worth talking about, otherwise we might as well attempt to argue with an ordinary Chinaman, who will maintain that an eclipse is caused by the Great Dragon attacking the sun or the moon (as the case may be) and swallowing the whole or part of those bodies. But if you don't like lying down and being kicked, at least do not pull me (for Heaven's sake) into the controversy. I think you will find letting it drop the cheapest in the end, for there is not a chance of your convincing your opponent; and if there were, you may depend upon it he is not worth convincing.*

It must be admitted that in the search for truth, and in the avoidance of inaccuracies, caution may be carried beyond the bounds of reason. This is especially so in a subject like the study of the birds of Great Britain, where the increasing number of accurate observers is constantly adding to our local knowledge. In 1871 Newton began the editing of the fourth edition of Yarrell's "History of British Birds," the standard work on the subject. There was an agreement made with Mr. Van Voorst, the publisher, to the effect that the whole book should be completed and published not later than the year 1885. By the end of 1879 only a quarter of the book had been produced.

I only hope Part V. will not give me so much trouble. I have brought between two hundred and three hundred books here to enable me to get on with it, but I cannot say as yet that I have seriously begun, though much of the preliminary work is done. I have also brought a large number of skins.

By the beginning of 1882, when more than ten of the

* Letter to T. Southwell, May 13, 1891.

fourteen years had elapsed, and only a half of the book was ready, Mr. Van Voorst quite naturally began to get a little bit restive, and said that the copyright of "Yarrell" would be out before long, and that at the rate of one part in two years no one of his generation would ever live to see the completion of the work. Newton contended that he had never made any agreement as to the date of issue, etc., that his system of editing required an intimate acquaintance with thousands of books and obscure publications, and that he could not do justice to the subject if he hastened the publication of the parts. Mr. Van Voorst threatened legal proceedings, and eventually an arrangement was made to the effect that Mr. Howard Saunders should edit the third and fourth volumes of the book. The decision was welcomed by the long-suffering subscribers, but it was a bitter blow to Newton, who wrote:—

This is a terrible wrench. For more than twenty-two years the preparation of "Yarrell" has been one of the main objects of my life, and I can safely say that no man ever devoted himself more faithfully to a task. On the other hand, I am now free from bonds that have held me in slavery (though you know the work has always been fascinating) for ten years and more.*

To a man endowed with such a highly developed faculty of sceptical criticism, as the above-quoted letters show was the case of Newton, it might be expected that the quickly changing schemes of nomenclature and classification would cause, at the least, some searchings of heart. It must therefore be recorded that, so far as questions of classification were concerned, he always kept an open mind and was ever ready to consider new ideas.

With regard to a systematic arrangement of birds, I

* Letter to A. C. Smith, May 23, 1882.

am much mistaken if we are not on the verge of the adoption of changes which a short time ago would have astonished the most learned ornithologists, and that in a year or two all the old "orders" will be entirely broken up and new ones constructed. Prof. Huxley, Mr. Sclater, and I, working each from different sides, have come to something very like the same results, and I must confess I think our results are likely to be lasting ones. I own, therefore, I should be very sorry to see our University pledged to maintain a systematic arrangement which, unless I read the signs of the times very wrongly, is about to be set aside for ever.*

It may be said, indeed, that he was always waiting for the true scheme of classification, and he never adopted one or publicly formulated one of his own so long as he lived.

I think a fairly satisfactory arrangement (all things considered) of British birds might be made—beginning with *Corvidæ*. You may go to Buntings, Finches, and the Larks. Then comes a break and you must start afresh with (say) *Paridæ* (including Nuthatch and Tree-Creeper) and so to *Sylviidæ*, *Turdidæ*, *Laniidæ* (+ *Ampelis*) and finishing with the Swallows, which so far as I can see form the only family of Passeres about the boundaries of which one can be sure. I believe I sent W. Eagle-Clarke a tentative list some years ago, of which he made use in the Edinburgh Museum, and I doubt whether I could improve upon it now—for one is no nearer the *pedigree* of British birds than one was then.†

In questions of nomenclature it must be admitted that Newton was ultra-conservative. He founded his faith on the Twelfth Edition of the "Systema Naturæ" of Linnæus, and he strongly resented any attempts to upset the old order.

* Letter to Mrs. Strickland, February 12, 1867.

† Letter to William Evans, November 20, 1898.

What you call the *Martes martes* "difficulty" is no difficulty whatever to me. I follow the usage of a century or more, and when I find it expedient to adopt a specific form as generic I take the next oldest specific name, and there is sure to be one at hand. This was the invariable practice till a few years ago when these foolish people started on "principles" which were not only new, but such as no man of sense or education would take up. It has been shown that the *Scomber scomber* and one or two similar cases, sometimes cited in defence of the new theory, were probably due to carelessness, or want of supervision. Certain it is that in Linnæus' own copy of the 12th Edition of the "Syst. Nat." which you may see in the library of the Linn. Soc. he has crossed out *scomber* as a specific name, and had his intended 13th Edition ever appeared it would doubtless have been corrected.

It is a curious thing that the more ignorant and uneducated a man is the more he tries to upset all established scientific nomenclature; but it has happened that a few educated men have (from vanity?) done some mischief in the same direction, and they are greedily followed by the unlearned, who fancy themselves wiser than all the rest of the world.*

Certainly "comparative" names are objectionable, except the time-honoured *major* and *minor*. One objection is (and it applies even to these two words) that when one is bestowed, another species is so apt to turn up which renders it inapplicable. I think nothing is more abominable than naming animals after men or women, and of late the practice (which shows that the nomenclator is ignorant or idle, perhaps both) has been so followed that it is almost an insult for any person to be so "commemorated."

As to generic names, it has been reduced to an absurdity. What do you think of *Thonarsitorson* as the generic name of a dove, given by Bonaparte in his

* Letter to G. E. H. Barrett-Hamilton, June 30, 1904.

later and semi-insane condition? and according to Reichenbach the species stands as *Thonarsitorson dupetit-thonarsei*! (see Cat. B. Br. Mus., xxi. p. 90). I would sooner be a *Scomber scomber*. One of the most beautiful birds of the Sandwich Islands bears the joint names of two of the biggest rascals that ever landed upon them.*

The practice of putting a small initial letter to a specific name originated, it seems, with Strickland, and for a long while indicated that whoever followed the practice accepted (at least in spirit) the British Association Rules for Nomenclature. Linnæus himself never called any animal (but only plants) after a man or woman, and his practice was to write a substantive with a capital letter and an adjective with a small one. A great many people failed to see the difference and so confusion arose.†

With the comparatively recent practice of describing sub-species and the introduction of trinomials, Newton could never bring himself to agree. Doubtless the enthusiasm of some of the modern naturalists outran their discretion, but it is impossible for the working zoologist to do without the use of trinomials altogether, and one cannot suppose that in the course of time Newton would not have seen the necessity himself.

Finsch wrote to tell me of Hartert having made some thirty or more subspecies of *Alauda cristata*, and now I hear of nine of *Loxia curvirostra*.

If I had not so much on my hands I think I should do what might save future ornithologists a good deal of trouble. You know that England and Wales have fifty-two counties between them; two of them, Rutland and Middlesex, are ornithologically speaking of small account and may be safely neglected, though the County Council of Middlesex thinks not a little of its capabilities and

* Letter to G. E. H. Barrett-Hamilton, October 12, 1898.

† Letter to William Evans, November 21, 1898.

sternly prohibits the taking of Ospreys', Bearded Titmouse's, and various eggs within its limits. Well, then, you have in South Britain fifty counties—for I don't propose to deal with N.B., where the more philosophical boundaries of watersheds have been successfully introduced—and I propose to take some common bird such as *Pringilla cælebs* or *Emberiza citrinella*, or both, and divide each into fifty sub-species; thus: *E. citrinella northumbriensis*; *E. citrinella dunelmensis*; *E. citrinella eboracensis*, *lincolniensis*, and so forth, as far as *cornubiensis*, and then back again through Wales and the west coast, taking the Midlands afterwards. There will be the names on the asset side of my account and I shall not trouble myself about finding out the differences of all these sub-species, I may safely leave details of that kind to those whom it may sub-specially concern.

Now will you give me room for a paper of this kind in your "Annals"? If so, I recommend you to print twice as many copies of that particular number as usual, for I prophesy an enormous run upon it.

All this new-fashioned stuff and nonsense about trinomials and nomenclature generally is begotten by pride (or self-conceit) upon illiteracy, and a very pretty progeny is the consequence! Hartlaub wrote to that effect forty years ago, but he was unheeded; now you have X—the greatest sinner of all on this side of the Atlantic. He has been attacked by men who only half understand their business, so he has been able to score off them. Of course, that has made him worse. His ingenuity I admit, but his deficiency in common sense is obvious.*

I am sure that the fewer new words a scientific author makes, the better chance he has of obtaining readers, even at the expense every now and then of a circumlocution.

In like manner I can't see why people can't recognise the existence of breeds or local races without calling

* Letter to J. A. Harvie-Brown, July 20, 1904.

them "sub-species" and giving each a special name. Again, too, if sub-species why not sub-sub-species, any number of subs, in fact?

I suppose you are committed to use "Vole," but I hope you will give due prominence to the fact that it is only the Orkneyan way of pronouncing and spelling what in most parts of England is called Fell, and comes from the Old Norsk fjöll—modern fjeld. Its first use is "Vole-Maus," *i.e.* Fell-Mouse, and in England the beast's common name is Field-Mouse. It was some learned donkey who thought of dropping the essential Mouse, and leaving the bare Vole, not knowing, of course, what the latter really stood for.*

Already a year later he admitted that there were worse things even than trinomials, trifles though they were.

I thought you might appreciate that reproduction of Wolley's sketch, and I am glad you do so, trifle as it is—but then the world is made up of trifles, and from some the more we can free ourselves the better. Of this kind are trinomials, motor-cars, hymns, and cats—the last perhaps the worst of all, for there is no avoiding them. Until I am run down by a motor-car I shan't much mind, and when I am run down I suppose I shall be finished and so mind still less.†

* Letter to G. E. H. Barrett-Hamilton, April 21, 1904.

† Letter to J. A. Harvie-Brown, April 5, 1905.

CHAPTER XIII

LANGUAGES AND WORDS

THE labour which Newton devoted to the recording and identification of specimens for the Museum was equalled or even surpassed by the industry of his researches in the history of Ornithology and the meaning of names. The most casual perusal of the "Dictionary of Birds" will show that it is a mass of information with hardly a redundant sentence. The Introduction, in particular, which contains a history and a general survey of the science of Ornithology, is evidence of a rare and wide learning. From his undergraduate days Newton had taken an interest in Scandinavian tongues, his knowledge of which improved during his visits to Norway and Sweden, and to these he added a considerable knowledge of Anglo-Saxon. The present biographer wrote to Professor Skeat asking for some account of Newton as a student of languages and received the following letter in reply :—

Cambridge,
June 25/09.

DEAR SIR,

I am quite grieved to find that I am unable to help you. I spend much time in helping others—they are quite welcome always.

But unfortunately I have not kept Professor Newton's most useful letters. I used the information, all the same !

But you can say this :—

When I returned to Cambridge in 1864, I was extremely desirous of learning Anglo-Saxon, but knew

nothing as to the names of the best books, nor had I any idea as to whom to apply for information, as the study seemed to be absolutely unknown here. In this dilemma, I applied to my oldest and best friend, who happened to be at that time a Fellow of Magdalene College. He bethought him of asking Newton for advice, who at once told him that the easiest book for a beginner was Vernon's "Anglo-Saxon Guide." I at once procured this very useful work (now superseded by Dr. Sweet's *Anglo-Saxon Primer*), and this enabled me to make a good beginning. But for Prof. Newton, I should not have known what to do ; and I owe it to him that I have been enabled to study Old English successfully.

Prof. Newton was also well acquainted with Scandinavian, and was especially interested in Scandinavian bird-names ; indeed he knew the names of birds in a large number of languages ; and in many cases, knew the history of the names themselves ; so that, for practical purposes, his philological knowledge was extensive. He most kindly assisted me (as well as the editors of the *New English Dictionary*) in many of my etymological investigations ; and I always found his information of much value.

It is difficult to specify instances. But you will find an example under *Ornithology*, in my book entitled "Notes on English Etymology," Oxford, 1901, at p. 201. The information afforded by Prof. Newton helped me (and the *New Eng. Dict.*) to give a correct account of that word. I again quote him twice (*s.v. Staniel*) at pp. 280, 281, of the same. And again *s.v. Whimbrel*, p. 319 of the same work, I quote Willughby, whose work I never saw, but only knew by help of Prof. Newton's communications. I believe I was also indebted to him for a recommendation to read Stedman's "Surinam," a most fascinating book, which I read through twice ; it helped me (and the *New Eng. Dict.*) to a correct understanding of the words *Piccaninny* and *Quassia*, see pp. 213, 234 of the same book.

Prof. Newton was naturally much interested in the

Anglo-Saxon names of birds. I remember that I pointed out to him the list entitled "Nomina Avium" in Ælfric's Vocabulary, as printed at col. 131 of Wülcker's reprint of T. Wright's "Anglo-Saxon and Old English vocabularies," London, 1884. This he at once copied out on slips of paper and arranged in alphabetical order for ready reference.

By his assistance I was able to give a fuller account of the phrase *cockshut time* than even that in the New English Dictionary. This article is printed at p. 166 of the *Transactions of the (London) Philological Society* for 1903-6. I mention his name twice on p. 167.

The only letter I can find from him is the one which I enclose, which gives useful information as to the word *Avocet*. You will see that he asks me to tell him when I publish my views on the subject. But I have not yet done so, as I cannot find the ultimate origin of the word. The only suggestion I know is that it is a derivative of Lat. *avis*, a bird; and this is by no means satisfactory. All I know about it is that it occurs in Florio's Italian-English Dictionary (1598), who gives: "*Avosetta*, a fowle like a storke," and that he also spells it *Avoserta*.

I also enclose the note which accompanied a present of Part II of his "Dicty. of Birds" (1893).

I am extremely sorry that I can help you no further.

Yours,

W. W. SKEAT.

The letter concerning the *Avocet*, to which reference is made, reads:—

10.1.1906.

MY DEAR SKEAT,

Thanks once more. I find it was Gesner who first described the *Avocet* and published its name—overleaf I have transcribed the passage. Aldrovandi, whose 3rd volume of "Ornithologia" was not published till 1603, though an Italian, added nothing to the point. I don't know, but I should infer that Gesner, who was a modest man and did not vaunt his own experience,

probably saw the bird himself at Ferrara. It is rather a misnomer for the people to have called the Long-billed Curlew *Spinzago*, for its bill is distinctly blunt and not needle-pointed. Pray let me know when and where you publish your views as to *Avosetta*, that I may refer to them if occasion should arise.

Yours very truly,
ALFRED NEWTON.

De Avosetta

Avis hæc, cujus iconum in sequeli pagina damus, apud Malos Ferraræ avosetta (ni fallor) nominatur, nescio qua ratione: & a rostri sursum inflexi figura beccostorta & beccoroella. Lucarni circa lacum Verbanum spinzago d'aqua: nam & arquata avis jam supra nobis descripta spinzago simpliciter eis nominatur, hæc vero aquatica est, & palmipes.

Conradi Gesneri, Tigurini medici & Philosophiæ professoris in Schola Tigurina, "Historiæ Animalium," Liber III, qui est de Avium natura (Tiguri: 1555), p. 225.

The above is the earliest description of the *Avosetta*, but the same is first mentioned a few pages before (p. 215) in the description of the *Arquata* or *Spinzago simpliciter*, i.e. the Long-billed Curlew.

A. N.

He always spelt the Cuckoo in the old-fashioned manner "Cuckow," and preferred to write the Whooper Swan without the initial "W," for which he had the authority of Professor Skeat:—

Cambridge,
January 4, 1906.

MY DEAR NEWTON,

I think the inconsistency in the spelling of *hoop-whoop* is not exactly my own, but due to the perversity of the English public. The correct form (etymologically) is *hoop*, but you cannot get people (as a rule) to adopt it. But if you have the courage of your opinions

I should be glad to see the name *hooper* brought to our notice. It's precisely in the same case as *hole*, adj., which became *whole* about A.D. 1500 or a little earlier, and is likely to remain *whole* for another century.

The cause was that (about 1450–1500) a habit arose of prefixing a well-pronounced *w* to words beginning with *ho*, *hoo*, *o*, *oo*. I gave a long list of these, and traced the fate of each word in the set, a few years ago, for the Camb. Phil. Society. One of the most interesting is *hot*, because Spenser got hold of the form *whot*, and stuck to it; but it has now become *hot* again; for the prefixing of the *w* was, first of all, in fashion; and secondly, went out again: *whole* and *whoop* are almost the only ones left. But the *w* survives in dialects, as in *woaks* for *oaks* and *wuts* for *oats*.

That's how I still write *whoop*, though I know that *hoop* is better, and I still write *delight*, though I know it to be an ignorant substitute for *delite*.

As to spelling reform, I should like to see it; but it is impracticable *at present*. I have an article to write upon it for the B.A.

Yours sincerely,

W. W. SKEAT.

The origin of the name Capercally or Capercaillie was the subject of much correspondence at one time with Mr. Harvie-Brown and others.

Now about the etymology of Capercally. (Of course, I know nothing, absolutely nothing, of Gaelic.) Having to write the article thereon for the "Encycl. Brit." and being in great doubt as to the spelling, I applied to all such persons as I thought could help me—among others to the corresponding Editor of the Encyclopædia, Mr. McArthur, whom I requested to inquire of the best Gaelic scholar he could get concerning the meaning, etc., of the name, and I herewith enclose you 3 letters which were the result of that inquiry. The first from McArthur introduces the others. I never heard of Dr. McLauchlan

before and take his reputation on trust from McArthur, but I doubt not he is a good authority. Not feeling quite sure of the particular sense in which McLauchlan used the expression "old bird," I applied to him again, asking whether it signified *antiquus*, *adultus*, or *senex*, and you will see that he says it means the last. "Capull" (= Caballus) you perceive he will not hear of. Please to return me these letters at your convenience.

My own opinion, so far as it is worth anything, is that the *Gaelic* name of the bird ought to be spelt as McLauchlan says, "Capercoille"—but the *English* or *Lowland Scotch*, I think, should be Capercally, or Caperkally (plural—ies). The first of McLauchlan's letters shows, I think, how Sibbald's *Capricalea* came about—"Gabhar," caper, the goat—but this is beside the mark.

Your explanation of the interchange of *z* and *y* in old books is I think hardly sufficient, for they were used, I will not say indifferently, but at times one for the other, long before the days of printing, and Old English MSS. have a mysterious letter $\frac{z}{y}$ or $\frac{y}{z}$ about the pronunciation of which some of the best Old English scholars are in doubt; for in some words it is modernized into *gh*, if I remember right, frequently into *y* consonant, and less commonly into *z*.*

I am really greatly indebted to you for all the trouble you have taken *in re* Caper——, but I am still in doubt as to how I should best render the name in English. The *z* is clearly not wanted, to say nothing of its being misleading to a Southron, and it seems to me that its retention savours of pedantry. It may be proper enough in a proper name like Menzies, just as we have people in England who stick to Smijth and ffolkes—the "ij" in the first being merely a "y" marked to show it is to be pronounced short, and the "ff" in the last standing only for an initial or capital F.

Pennant, who seems to have been the first British (as

* Letter to Mr. J. A. Harvie-Brown, March 16, 1878.

opposed to Scottish or Irish only) naturalist who mentions it as a bird of this country, says that it was called "in the old law books Caperkally." Your evidence contradicts this, but in some of the subsequent Acts it may have been so termed, for I have generally found Pennant pretty accurate. Still he gives no particular authority and it may be that he got this information verbally, in which case he is certainly not far wrong, for I suppose he intended the second "a" to be sounded broad, and I am told that the nearest approach to the sound of the Gaelic when written in English is "Caper-coilye" or perhaps "Caper-choilye." It would be a great pleasure to me to prove Pennant absolutely right by finding a "law-book" in which the name was spelt "Caperkally" or "Capercally"—which last I am pretty sure Wolley used to maintain he had satisfied himself was correct.

I wish Mr. Small wrote more distinctly, I can't be sure whether he means his new derivation to be "Cabbar" (an old bird) and "Coille," the first word being written to *look* more like "Cakkar."

I forgot to answer the question in your former letter. I have duly received your paper on "Birds of Sutherland and Gulls in the Forth," but no duplicate copy of "Transylvania." *

The word written by Mr. Small was correctly, "Cabher," signifying an old man, or old bird.

Soon after this Mr. Harvie-Brown began to collect material for his book "The Capercaillie in Scotland" (published in 1879), and Newton gave him much help in looking for early references to the bird.

I cannot find a copy of Lindsay's (Pittscottie) History in our library, but I have found that we possess 2 editions of the Scots Acts. In the older (printed in 1566) there is one of Q. Mary, 1551. "Of the prices of wylde and tame meitis. Ca. Xj," which are to be:—

"Cran" 5/-, "Swan" 5/-, "Wylde geese of the

* Letter to J. A. Harvie-Brown, February 17, 1876.

greit kind " 2/-, " Claikquink and rute " -/18*d.*,
 " pleuver and small meere foule " -/4*d.*, " blak cok and
 the gray hen " -/6*d.*, " the dosane of poutis " -/12*d.*,
 " quhaip " -/6*d.*, " the cuning " 2/- until the next feast
 of Fasternis Even and afterwards -/12*d.*, laproun
 -/2*d.*, woodcok -/4*d.*, larks and other small birds -/4*d.*
 the doz., " Snype and qualzie " -/2*d.*, " tame geese "
 -/16*d.*, " capone " -/12*d.*, " hen and pultrie " -/8*d.*,
 " chikin " -/4*d.*, " gryse " -/18*d.*

In the later edition (1681) the same spelling is observed.

Now what can this " gryse " be ? Sold at 18 pence when black cock and grey hen were at 6 pence and " pouts " (I suppose heath-poultres or moor-poultres, *i.e.* Red Grouse, at 12 pence the dozen ! Was it Caper-cally ?

Pinkerton in his " Hist. Scotl. " (II. p. 397) prints a letter from one John Elder of Caithness to Henry VIII. in which the former says :—" Our delight and pleasure is not only in hunting of red-deer, wolves, foxes and *graiies*, whereof we abound and have great plenty." " Graies " here are, of course, badgers, as also in the Act of Jas. II. (of Scotland), 1455, prescribing the dress of the Lords of Parliament, who were to have, " ane mantill of reid, rychtswa oppinnit befor, and lynit with silk, or furrit with cristy gray grece or purray." The later edition spells the word " griece."

Badgers, though eatable, could never have come into the market sufficiently often to make it desirable for their price to be fixed, and I only quote these passages to be assured by you that the " grice " of Pittscottie cannot refer to them.

But the " gryse " of Mary's Act puzzles me not a little just as much as some of the other birds (?) named in the same document.*

I can no more decide whether Dr. McLauchlan or McArthur is the better Gaelic scholar than I can take

* Letter to J. A. Harvie-Brown, February 16, 1878.

on me to say which derivation is the truer. But what makes me lean to the former is that not only has he the latter's experience to go upon, but also that having asked the Editors of the "Encycl. Brit." to get the opinion of the best man, and they (having opportunity of knowing who that best man is and of getting his opinion) choose McLauchlan. Of course, both he and they are liable to error, and there are more differences of opinion among scholars than among naturalists even, though Heaven knows these are wide enough at times. What I should recommend you to do is to state both and adopt neither! Your "Horse-cock" * brings us to the fabled Hippoelectryon of Aristophanes, or Cockhorse of our childhood!

I don't think the law of priority can apply in the case of derivations for a minute. We should have to accept the famous *lucus a non lucendo*, Roma from Romulus, Tibur from Tiberinus, and all the rest of the fanciful derivations invented before Etymology was anything but a series of guesses.

Dr. McLauchlan's letters were, of course, written with the object of his views therein expressed being made public, but Mr. McArthur, I imagine, would not like being quoted as though he thought himself or was thought to be a Gaelic authority, for he told me in one letter that he was not.

I sent you a card yesterday anent Przevalsky—one part of which (the 3rd) is wanting.

A Squirrel inquiry would no doubt be in some degree interesting—but I don't think people will value it so much as they will this Caperkally investigation.

Everybody seems to think that "Gryse" in that old statute means pig, I am sure it cannot be grouse. Have you made out *mittalis*, *atteils*, *goldings* (NB., *gauling* is now the general word in the English W. India Islands for the smaller Herons), *mortyms*, *schidderenis*, *brissel-cock*

* This is a reference to an improbable derivation of the word from the Gaelic "capull," a horse.

(cf. coq de brassailes) or *paunies* (cf. paons) ? “Lapron” I take to be Hare (*Lepus*).

There is no doubt about the MS. use of $\frac{3}{2}$ —cni $\frac{3}{2}$ t=knight is a good illustration of it.*

Mr. Thomas Southwell, a well-known Norfolk naturalist, found that the Mistle-Thrush was called in some districts of East Anglia “Drain,” the same name by which the bird is known in France, and he asked Newton if he knew the origin of the word.

March 5, 1902.

MY DEAR SOUTHWELL,

I don't know what is the origin of *Draine* except it be as Vieillot, in the passage I have transcribed, says from the bird's cry “tré, tré, tré.” Littré does not attempt any derivation, but Rolland compares it with the Spanish *Drena*. It has long been the published name of the Mistletoe Thrush in French books, and no doubt Bewick quoted it from Buffon. Buffon, by the way, is just as explicit about the birds feeding on the berries and bearing some of its common names from the fact as Vieillot is, and it is the same in various Italian dialects, which all come from the local name of the Mistletoe. Had not Mr. Engelheart “missled,” he would have caught it pretty severely from me, but I am thankful I have not had to administer the punishment, for in my reply I stuck simply to the points he had raised.

Wilkin had prepared me for some discrepancies between the different editions of Browne's “V.E.,” but those you notice between that of 1646 and the others are in this case of no importance. In Wilkin's reprint he has the Greek word $\epsilon\chi\theta\beta\acute{o}\rho\omicron\varsigma$, which is clearly wrong, for it ought to be $\iota\chi\theta\beta\acute{o}\rho\omicron\varsigma$ as it stands in Browne's first edition.

I saw Wilkin's note about the European species of mistletoe, but that does not signify as the *Viscum album* admittedly grows in Greece and was doubtless the original “ $\iota\chi\theta\varsigma$.”

* Letter to J. A. Harvie-Brown, March 20, 1878.

The articles in the *Standard* that I mean began fully 20 years ago. Perhaps you know whether Mr. S—— has been writing all that time. I never heard of Mr. R—— or saw to my knowledge any of his articles. What a discovery for him to make about Dodman and Thrushes! If he be an imitator of Jefferies he must be bad indeed, for I think the writings of the latter to be in the worst taste possible. It has always amazed me to read how much he is admired, for greater rubbish there can hardly be. Whenever he tried his pen on human beings the reviewers were down upon him, and most justly, for they saw what stuff it was; but knowing no Nat. Hist. they did not find him out there. All the same I pity the wretched man.

Yours very truly,

ALFRED NEWTON.

Writing in "Yarrell" * of the Mistletoe-Thrush, Newton added an interesting footnote on the subject of the bird eating the berries of the mistletoe.

This fact was known to Aristotle, as his name, (*ἰξοβόρος*) for the bird shews. Dr. Prior, in his "Popular Names of British Plants" (p. 153), gives the derivation of Mistletoe, or its Old-English equivalent, *Mistiltan*, "from *mistl*, different, and *tan*, twig, being so unlike the tree it grows upon;" but my two learned friends, Mr. W. W. Skeat and Mr. J. Rawson Lumby, think *mistl* to be an unusual contraction of the unusual form *mistlic*, which is a corruption of *mislic* (unlike), while the Doctor's derivation, taken from Bosworth, is contradicted by the use of the *t* in the old High-German *mistil*, (mistletoe). This last, clearly the origin of the plant's name, is probably from *mist*, meaning dirt or obscurity. The idea of dirt, from the viscosity of the berries, is most likely that which is here attached to the word; but it may refer to *Mist*, one of the goddesses of fate in the Northern mythology, and in this sense Mistletoe would signify "twig of fate," in connection with which there is a story in Snorri's "Edda" (chap. 49). *Tan*,

it may be observed, still survives in English as the "fine" of a fork or of a stag's antler. Anyhow it would seem that the proper name of this bird should be written in full "Mistletoe-Thrush," and not, as commonly, "Missel-Thrush." *

The origin of the word decoy" is not generally known.

"I have had no doubt since I looked into the question of the origin of our word decoy. It comes straight from the Dutch, "eende-coy"—Duck-coy—"coy" meaning more than a cage but almost any kind of enclosure for keeping birds alive. The "eende" not being understood by Englishmen soon lost its first syllable, and then you have the word exactly. I think I pointed this out in a review I wrote somewhere of Payne-Gallway's book, saying that it was absurd to speak of a Duck Decoy, though of course one might properly speak of a Decoy Duck.

Pijlstaart is nowadays even the common Dutch name for the Pintail, which is almost translation of the word, "pijl" (pronounced *pile*) being a spike of any kind. Pijlstaart was also applied by Dutch sailors to the Tropic-bird from its long spike-like tail, hence Pijlstaart Island, corrupted into "Pillstart," a well-known place to the North of New Zealand, and perhaps repeated in other seas. "Staart" is, of course, tail, as in Redstart, Start Point, etc.†

Partly by reason of his physical infirmity, which necessarily made his life more sedentary than that of others, and partly owing to his habit of discouraging visitors except at stated hours, Newton had more time for reading than have most men, and he was blessed with an uncommonly retentive memory. Sale-lists and book-sellers' catalogues from all countries filled his letter-box, but he was not a collector of books, though his library

* "History of British Birds," 4th edition, I. p. 260.

† Letter to Mr. T. Southwell, May 5, 1903.

contained many of great rarity, and his purchases were few. The University and Philosophical Libraries provided him with most of the books he wanted, and there were few treating even remotely of Natural History that did not eventually find their way to him. There was usually something to be learnt from them, but there were occasions when he found that his hours had been wasted and then he did not hesitate to trample on the luckless author.

I have been wasting 3 or 4 days looking over an essay by a very great German classic on the Fauna of the early Roman writers. I had hoped to have found a great many allusions to birds and other animals all carefully set forth, but to my disappointment there is nothing of the sort, and the author avoids any serious difficulty. I believe the authorities here have gone so far as to say they will print this, but I should not advise it. You may judge what the book is like when the author wants to make out that the *Napun*, given by Pliny as an Ethiopian name of the Giraffe, is the Okapi! As if the recondite resemblances between these two animals was plainly visible to every eye, instead of being reserved for those who are comparative osteologists! People like this ought to be shut up in Tolbooths or such-like places, where the harmlessly silly may live their lives without bothering others with their nonsense.*

His varied learning and his accurate memory were constantly being called upon in the most diverse directions and were seldom found wanting. At a meeting of "The Family," an old-fashioned University dining-club, somebody raised the question of the "No Snakes in Iceland" story. One member present remembered the reference to it in Boswell,† but it was Newton who knew

* Letter to J. A. Harvie-Brown, March 20, 1900.

† "Langton said very well to me afterwards, that he could repeat Johnson's conversation before dinner, as Johnson said that he could repeat

the origin of it, and at the request of Mr. H. T. Francis, then Librarian of Caius, he wrote the history in a note on the following day.

M.C., February 12, 1903.

MY DEAR FRANCIS,

I told the whole of the "No snakes (or owls) in Iceland" story, chapter and verse, in *Notes and Queries* ever so long ago—perhaps 20 years—but I cannot lay my hands on the reference. Briefly it is this. There was one Anderson, burgomaster of Hamburg, who wrote "Nachrichten von Island" which was (posthumously) published in 1746 or 1747, and therein the occurrence of Owls and Snakes in that island is mentioned. The Danish Government did not like what he said generally of the place, and employed one Horrebow to reply to him. This Horrebow did in his "Tilferladelige Efterretninges om Island," published in 1752, taking Anderson's assertions categorically. An English translation of Horrebow appeared a few years after, each of the subjects on which he remarked being headed Chapter so and so. Thus you have "Chaper XLII. Of Owls. There are no owls of any kind in the whole island,"—and the same with Chapter LXXII. "Of Snakes." I don't suppose the book attracted much attention till Sidney Smith (I think) happening to come across it saw the absurdity and brought it into some article (on quite a different subject) in the *Edinburgh (?) Review* and the expression has since become famous.

Yours very truly,

ALFRED NEWTON.

a complete chapter of the 'Natural History of Iceland' from the Danish of Horrebow, the whole of which was exactly thus:—

'Chapter LXXII.—Concerning Snakes.

'There are no snakes to be met with throughout the whole island.' "

["Life of Johnson," chapter xxxviii].

CHAPTER XIV

WRITING AND CONSERVATISM

As the years went on the number of Newton's friends and acquaintances grew. Most of the leading zoologists, and many besides, in this and other countries were personal acquaintances and many of them were frequent correspondents. He never employed a secretary and was always most particular to answer a letter on the morning after its arrival.

I don't know that much credit is due to me for being punctual in correspondence. Experience has shown me that in the end it saves trouble to be so, and that is why I am never easy so long as a letter remains unanswered.

He wrote on the back of each letter the date of its receipt and the date of his reply: if the letter were of any importance, he wrote and kept a rough draft (which he labelled "draught") of his reply. Nearly all letters, excepting the most trivial notes such as invitations to dinner, etc., he kept tied up in bundles. When it is remembered that he wrote to and received a letter from his brother Edward almost daily, and that his letter address book contains several hundreds of names, it can be believed that the accumulated correspondence of more than fifty years amounted to tens of thousands of letters.

Although he was invariably courteous and punctilious in replying to people who wrote to him about one thing

or another, he complained in private of the time he wasted in writing to them :—

People keep writing to me on every conceivable subject connected with birds, but there is nothing in their letters on which I need comment to you. I begin to suspect that I shall have to invent a lithographed form acknowledging the receipt of a stranger's letter "which shall have due attention," and then put it in the waste-paper basket—after which there must be another form to the effect that it "had received due attention." This would make one much beloved.*

Apart from his purely scientific correspondence, Newton wrote regularly on all manner of subjects to a number of old friends, among whom may be particularly mentioned Canon Tristram of Durham, Lord Lilford, and Mr. J. A. Harvie-Brown. The first of these had a severe "stroke" in 1893, and the correspondence was interrupted for some months. When he was beginning to recover, Newton wrote to him :—

I am indeed glad once more to see your handwriting, and I congratulate you most heartily on having once more resumed the practice of the 2nd of the "3 R's"—and in your case I may say of the 4th since R-ticulation has been added to the others. I take it as a great compliment that you should select me as the recipient of your second MS., and I admire the judgment of your Dr. in prohibiting the two P's—preaching and politics. I believe (miscreant that I am) that the former makes few men better, and I know that the latter makes many men worse.

You are easily pleased if you can find delight in B.M. Cats ; as a *whole* a more useless litter was never kitted,† not even one which a few weeks ago my man

* Letter to Lord Lilford, March 14, 1891.

† I.e., "British Museum Catalogues," of which he had a deep-rooted dislike. A careless correspondent confused catalogues with dictionaries and

found deposited by my (garden) doorstep and by the desire of the mother's owner its members expiated their uncommitted offences in a prompt water-butt.*

Even the comparatively trifling business of beginning or ending a letter demanded a definite amount of care and consideration. Mr. Harvie-Brown wished to dedicate a volume of the "Fauna of Scotland" to Newton and sent him a draft of the proposed dedication, which came in for Newton's criticism:—

I indeed take it very kindly of you that you should wish to dedicate your book to me, but I confess I hardly think that a regular dedication is merited by my services or will in any way aid your book. It has already given me much pleasure to be of any use to you, but I think it only my duty to help any one who like yourself desires to promote and extend the knowledge of Natural History, and a few words in your preface or introduction will amply repay me for any trouble I have been at in regard to your book.

If, however, you insist on a regular dedication, I would suggest that you should word it somewhat less formally, and at any rate substitute "Dear Newton" or "Dear Prof. N."—for the "Dear Sir" at the beginning, and "Yours very truly" or "Yours truly and obliged" for the "Faithfully yours" at the end. This, however, is only a matter of taste, yet taste has so much to do with Dedications that on this account I often think they are best left alone, or rather left out.†

Most of his letters were written with a definite

was properly reproved:—"In your letter you cite my note in the 'Catalogue of Birds' instead of the 'Dictionary of Birds.' Of course this was but an inadvertence and being in a private letter is of no consequence. I would only beseech you to be careful not in any publication to associate my name with the former of these works, as I have no wish to deprive its authors of the reputation it has achieved." (Letter to A. F. R. Wollaston, February 16, 1902.)

* Letter to Canon H. B. Tristram, October 23, 1893.

† Letter to J. A. Harvie-Brown, January 15, 1879.

matter-of-fact purpose, and "gossipy" is the last word that could be used of them, but his quiet (if somewhat caustic) humour relieved the dryness of many a page. He loved telling and hearing humorous stories—Dr. Guillemard remarks elsewhere that he laughed with his whole body—and he often passed them on in letters to his friends. The following was written as a postscript to a letter * to Mrs. Hugh Strickland dealing with the legal terms of a bequest to the Museum :—

Here is a zoological anecdote. Mr. G. X. is very ugly and hairy. He went to call at a house a few days ago and found only a little girl in the drawing-room. He began to say something civil to her but she would not answer. At last he said, "You don't know who I am?" "Yes, I do," she replied, "I gave you a bun at the Zoological Gardens last Sunday—and, you naughty man, you had no clothes on!"

Newton wrote with a blunt quill pen a firm and distinctive, but too often illegible, handwriting which frequently baffled the recipients of his letters :—

Magd. Coll.,
May 26, 1892.

MY DEAR POTTER,

. . . I hope we may see you here one of these days, and you know you will always be welcome in my rooms. Poor Babington makes very little progress, and I doubt whether he will get about again. His doctor assured me to-day that it is only a bad form of gout—a disease from which his very abstemious habits ought to have kept him free—but it is said that he has been a martyr since his marriage to sweet puddings—so I pray you to take warning and believe me to be,

- Yours very truly,
ALFRED NEWTON.

* July 6, 1878.

Mr. Potter replied that a diet of suet puddings was hardly appropriate for a man of Professor Babington's age, which drew from Newton a postcard :—

"*Sweet* not *Suet* puddings have been the bane of C. C. B. The latter are not only excellent but, in moderation, harmless. Excuse my bad writing.—A. N."

Most of his letter-writing was done in the morning after a late breakfast. The afternoon he usually spent in his room at the Museum, and late at night he did the greater part of his writing :—

As for working at night I am sorry to hear that you object so much to it. For the last 20 years and more nearly all my best head work (if any of it has deserved such an epithet) has been done between 10 p.m. and 2 a.m. simply because it is only then that I can ensure being free from interruption. It is true that one *might* get 4 hours in the very early morning—but then one must interfere with other people's hours about getting up—servants' especially—for I could not undertake to do anything without breakfast and a fire, and I don't think I am really the worse on the whole for my *early* hours.*

He was almost meticulously exact in his writings, which made him a slow worker, as it took him some minutes to get up from his chair, find a required passage in a book, and return to his chair.

. . . such reputation as I have for accuracy, and I will not pretend to say that it is not to some extent deserved. I have from time to time come an "awful howler" for, do what you will, such things are not always to be avoided.†

The "Dictionary of Birds," with its thousands of

* Letter to Thomas Southwell. January 21, 1888.

† Letter to R. Holt-White, April, 1907.

references and quotations, represents an amount of labour that can hardly be computed, and the number of inaccuracies in it is insignificant. One of his own copies is full of hundreds of notes in pencil, many of considerable importance, additions, suggestions and corrections, which, it may be hoped, will be embodied some day in a new edition.

As in the case of the Fourth Edition of "Yarrell," mentioned above, Newton was provokingly slow in the preparation of the "Dictionary of Birds," so much so that he had a serious quarrel with his publishers about the question of payment. Many of his friends were persuaded that he had a good case for going to law with them, but such a course was distasteful to him, and after many delays the book was completed.

It may readily be believed that Newton's habits of delay were in a high degree irritating to publishers and other people of business-like methods. The publication of any book or pamphlet of his involved usually a somewhat heated correspondence, of explanations of delay on his part, and of protest on the part of the exasperated and long-suffering publisher. During one of these controversies, when he was in the throes of publication, he wrote :—

I may use the words of Eli about his wicked sons and say it is no good report that I hear of "Messrs. X. and Y."; but publishers I really believe are all scoundrels alike, especially those of the highest repute. One must be dumb before the shearers because one can't help oneself. They keep well within the law, which it is their business to know, but the law enables them to fleece their victims at pleasure. I have forgotten the particular incidents of the opening of the 6th Seal, but I know there is somewhere an uncomfortable place mentioned in which there will no doubt be

room for publishers, and bootmakers, who next to the former inflict the greatest misery on unoffending mortals.*

He insisted always on a high degree of accuracy in his pupils, greatly to their benefit in after years, and advised them always to write down their ideas and record any interesting observations. He would often himself copy pages out of a book which he did not possess, for possible future use.

Don't give way to the desire of self-advertisement. Depend upon it your opportunities will come of themselves. But it is a good thing to write down one's thoughts, theories and inventions, though it may be years before one uses them. What I put into my article "Migration" was sketched out and in part written one night at Brussels, at least 20 years before I had the chance of putting it into the "Encyclopædia Britannica!" †

As to writing and tearing up what one has written, I take that to be the only way of doing good work—and even the practice I have had for fifty years does not save me from that kind of thing. What I wrote on Gilbert White for the "Dict. of Nat. Biogr." must have been written and rewritten three or four times *at least*, some passages perhaps less often, but others more. ‡

. . . What I mean by "revision"—about which you inquire—I can best explain by stating my own way of proceeding. I write, rewrite, and again rewrite, everything I intend for publication—beside reading *aloud* to myself all I have written between the 2nd and the 3rd writing—and again after the 3rd writing is done. It is a tedious business, and apparently not

* Letter to J. A. Harvie-Brown, September 26, 1905.

† Letter to C. E. H. Barrett-Hamilton, March 23, 1901.

‡ Letter to R. Holt-White, October, 1899.

always successful—witness Mr. ——'s improvements (?) on my article—but on the whole it answers, especially the reading aloud to oneself, for I would not, on any account, have any one to hear me. Another thing in "revision" which I have found useful is to get rid of every word (adjectives especially) that has not an effective meaning, and to reduce every sentence to the smallest number of words. Here, again, it seems from Mr. ——'s treatment, I don't always succeed, and so in all humility I offer these suggestions. It more than once struck me in reading your MS. that it was capable of being strengthened in places by omitting a word or two here and there, or by recasting a sentence. My own experience goes to show that these emendations occur to one when one is reading aloud, for then the ear tells one that this, that, or the other might be bettered.*

His own writings were distinguished by a marked simplicity of style; every word was well chosen and seldom was one redundant.

You will see that I have always taken exception to the use of "central" as applied to tail feathers. I dare say this may be a bit of pedantry on my part, but my notion of "centre" (and therefore of its adjective) always implies a certain spot in a definite enclosed space, and accordingly the word is inapplicable to the middle feathers of the tail, though I am well aware that it is often so used by authors who don't care for accuracy. "Middle" is a good old plain English word which may well be employed instead.†

. . . In the report (Migration) there are only two things other than ordinary composition "fads" that seem to need correction—one is "most of" into "nearly all" because a "most" occurs in the next

* Letter to R. Holt-White, May 5, 1900.

† Letter to T. Southwell, October 30, 1888.

line, and the other is the misspelling of Rossitten, for which I must hold myself guilty in my MS.

B.'s suggestions don't amount to much, and if it would gratify him might all be adopted—though I should shorten his “what may at present be termed” into “apparently,” that being vague enough for anything. I dislike “commence” to do a thing—what is the harm in “begin,” a word which is going out of fashion so fast that the next revision of the Old Testament is likely to open with the words “In the commencement,” etc!

I can never see why in serious writing Daws should be nicknamed Jack. The word did well enough of itself for Shakespeare, and naturalists do not generally write of Tom Tits. Jack-Snipe is quite another matter, and there the prefix has a real meaning, though it may be of obscure origin.*

Being endowed with a very highly critical faculty, Newton was naturally somewhat intolerant of the less considered judgments of others. Among those who came in for his especial condemnation were (often very undeservedly) writers of “popular” Natural History and the reviewers of Natural History books.

For a long while it has been the burthen of my song that we have more Natural History Journals than the country can afford, with the result that the numerosity is not only injurious to the Journals themselves but to Natural History itself, as it lowers the tone of the contributions. I wish I had friendly advice to give you, but I hardly know what can be done. If you, or any other man in your position (should such there be), were to buy up one or two of these miserable periodicals which have no excuse for their existence, I fear the only effect would be that successors, still less worthy of support, would be started; and yet I know nothing else that is possible.

* Letter to F. Knubley, August 16, 1903.

The lot of rubbishy naturalists we have about is very great, and the worst of it is that the people of this country like a low class of Natural History writing better than a high one. Look at the way the most wretched books sell, and the silly style in which they are reviewed! Editors of newspapers seem to think anybody capable of reviewing a Natural History book, or of writing a Natural History article. If occasionally a competent critic does speak his mind, he is put down as ill-natured or as having some private spite.*

Natural History reviewing is one of the lost arts in this country. They still practise it rather well in America, for the reviewers there seem to take some little trouble to learn what the author has to say. Here a man only scribbles off a lot of platitudes, or if he wants to be nasty tells his readers what he thinks the author ought to have said.†

In spite of his fundamental devotion to accuracy, he was equally cautious in assertion, and he would never, if it could be avoided, allow himself to be drawn into controversy. He was invited to contribute to a well-worn discussion about the hibernation of the Cuckoo.

O the Cuckow, the Cuckow! What a bird that is! I do not completely "endorse" (*lingua Americana*) Baldamus, because it is manifest that his statement is not "universally" but only "approximately" true, and this is enough. Quod scripsi scripsi, and Newman means to reprint my *Nature* article in the *Zoologist*.

I have not the slightest wish to take part in a controversy which promises now, as it proved to be before, to be productive of much acerbity; for the editor of *Nature* three years and more ago sent me many letters which he had received but never printed, and the

* Letter to J. A. Harvie-Brown, October 23, 1887.

† Letter to T. Southwell, February 27, 1902.

violence with which people expressed themselves was amusing. The Cuckow is one of the Englishman's divinities, and anybody who strives to dispel or explain the mystery pertaining thereto is supposed to be guilty of profanity. It was this that chiefly made me abstain from writing an article on "Cuckow's Dupes" which I had long been perpending.

Dear old Hewitson would go at me with still greater fury than he has exhibited towards you. "Doubt my Cuckow, doubt me." So that in spite of your solicitations (and there are not many of my friends to whom I would, sooner listen) I must preserve my peace of mind.*

His habitual caution prevented him from uttering theories about such questions as Classification or Geographical Distribution, and to matters of philosophical speculation it may be said that he was almost indifferent.

I do not think Huxley can be charged with coining the word "Positivism." I have heard it these 20 years nearly, though I confess I have never attached any very definite meaning to the word, or cared to know anything about M. Comte, the founder of the system. I have heard Huxley call it a kind of superstitious infidelity which had all the advantages of Popery without anything to counterbalance them, but I am not curious in these matters and, believing that everything in this world is *comparative* from Anatomy downwards, I have not troubled myself to inquire into the merits of a *Positive* Philosophy.†

In politics, as one might expect, Newton was staunchly Tory, the old order was the best and changes should be opposed; but it cannot be said that he was

* Letter to Rev. A. C. Smith, April 22, 1873.

† Letter to Mrs. Strickland, June 26, 1869

ever actively concerned in politics, either national or of the University.

We are all furious here ; the Council has refused to allow a petition against Gladstone's Bill to come before the Senate, and I believe we shall have to nonplacet every Grace till the Council comes to its senses. But I do wish we had a leader one could respect. The last squib though from the other side is good—

O Teddy Perowne¹ is gone to his own,
He is gone to his own in a chariot,
On a fizzing hot plate he is sitting in state
With Pilate and Judas Iscariot.

¹ It has just struck me that this is an obvious mistake, and for "Teddy P," I should read "Billy Gladstone."—A. N.*

When Lord Salisbury went to Cambridge in January, 1891, he confessed that he had never been to a political meeting in his life, and thought it useless at his time of life to begin the practice of attending.

In College politics, as well as in greater affairs, he was staunchly conservative, and in the progressive days at the beginning of this century it often happened that he voted in a minority of one. The following instances, familiar to many Cambridge men, of his sturdy opposition to change have been so well told by Mr. Benson that they may best be given in his own words :—

Shortly after this date (1905) music was introduced into the service. There had not been a musical instrument in the chapel since 1680, or any species of music, and the introduction of the harmonium was a sore blow to the Professor, who had hitherto successfully resisted all attempts to establish an organ in the chapel. When hymns were introduced, it was an unfailing amusement to see the Professor open a hymn-book, and survey the scene with ill-concealed disgust. He used to shut the

* Letter to H. B. Tristram, June 6, 1869.

book with a snap before the end, and sit ostentatiously down with an air of relief. He always said a loud Amen at the ends of the prayers ; but when the Master introduced a little prayer for the College, from the old Compline Service, the Professor used to turn to the pages of his Prayer-book, look round with dramatic bewilderment, as though he thought the Chaplain was delirious, and hold his lips stiffly sealed at the conclusion, for fear he should forget himself and add the endorsement of an Amen to any petition of so singular a character.

On another occasion it was proposed that ladies should be admitted, in restricted numbers, to the chapel service. The discussion was amicable, and a system was suggested. To my surprise, the Professor took very little part, except to interject an occasional growl ; but when the motion was put to the vote, the old man grew suddenly white, and in a voice strangled with passion made a most vindictive speech. He said that he disapproved of all the alterations in the chapel service ; that it was no longer the least pleasure for him to attend. Everything done or suggested was utterly out of keeping with the idea of a plain collegiate service. He disliked it all from the bottom of his heart ; and he wound up by saying that we might pass what votes we liked, but that if one lady was admitted to the chapel service he should never set foot in the building again.

An embarrassing scene occurred when one of the Fellows asked leave that his daughter's marriage might be celebrated in chapel. The Professor exploded in wrath. He had never heard such a preposterous suggestion. A College chapel was not intended for such things as weddings ; the young lady could have no associations with the place ; he regarded it as a most improper and entirely unaccountable proposal. On that

occasion the rest of the governing body were rather indignant at the attitude of the Professor to what seemed a very reasonable request, the matter was put to the vote, and the chapel placed at the disposal of the Fellow in question. At the following College meeting the Fellow withdrew his request. His daughter had been so unfortunate as to break her leg while playing lawn tennis; she was to be married quietly in the neighbouring village church as soon as she could get about. The Professor smiled, and said, with really incomparable humour, *Solvitur non ambulando*.

One great scene took place when an organ was offered by one of the Fellows to the College chapel. It was thought that the Professor would object so strongly that the proposal was deferred. Eventually, however, it was brought forward. The Master began by saying, "I have a proposal to make about the chapel, which I fear you will not like, Professor." The Professor flared up and said, "No, indeed, I never come here without hearing something that I dislike very much." The offer was then stated, and every one then welcomed it with cordiality and enthusiasm. The Professor waited till they had done, and then, with a little bow to the donor, said, "Words entirely fail me to express my sense of the generosity and public spirit which prompts this offer. But I am bound to say that I object *in toto* to music in a College chapel. It is entirely out of character, and I am therefore bound to oppose what I believe to be against the best interests of the place." The usual scene took place, the Professor voting in a minority of one. But when the organ was erected, he contrived to say something pleasant to the giver about its improving the appearance of the chapel.*

As well as of bootmakers and publishers, Newton was pardonably impatient of Bores:—

* A. C. Benson, *Cornhill Magazine*, June, 1911.

I always try to love my enemies, but I think it can hardly be inconsistent with Christian principles to hate bores, seeing that the New Testament lays down no injunction as to how they are to be treated, unless by a slight change of spelling they are to be driven down a steep place to perish in the water below.*

It is not easy to avoid conveying the impression of a fiercely intolerant and prejudiced man, impatient of opposition, and convinced of his own unassailable exactness. Such he might, and doubtless did, seem to some on first acquaintance, but, good fighter as he was, and hating innovations, he had the keenest sense of justice. Mr. A. C. Benson wrote † of him: "I never saw a man who took a defeat better. He fought to the last moment, and when he was outvoted, he accepted the situation gracefully and good-humouredly. I never heard him make any sort of criticism or recrimination afterwards."

It is not unkind to say that he was almost completely lacking in emotion, but under his somewhat grim exterior lay a really warm heart and an unexpected depth of affection for and understanding of others. He took a keen personal interest in the young men who came to visit him, and his judgments of their capabilities were seldom at fault:—

Balfour, ‡ scholar of Trinity, was here last night;

* Letters to Canon H. B. Tristram, September, 1892.

† *Op. cit.*

‡ Francis Maitland Balfour, born 1851, Scholar and Fellow of Trin. Coll. Camb. Oxford was most anxious to gain him as a successor to the late Professor G. Rolleston, and Edinburgh made repeated efforts to secure him for her chair of Natural History. But he would not leave his own university, and in recognition of his worth and loyalty a special professorship of animal morphology was, in the spring of 1882, founded for him at Cambridge. On July 18, 1882, he and his guide set out from Courmayeur to ascend the virgin peak of the Aiguille Blanche de Peuteret. They never came back alive ("Dict. of Nat. Biography").

second in the First Class of the Nat. Sci. Tripos. of this year, and no doubt the next Fellow of Trinity. Younger brother of Balfour of Whittingehame. He is exceedingly quiet and modest. He will be a very great man, and I should be sorry to lose him from Cambridge. . . . He will be more known as a student and from his researches than in any other way, unless he gets over his shyness.*

Nor did his interest in young zoologists cease when they left the University. Most of them came back at one time or another to see him at Cambridge, and he was always generous in giving help and advice to his friends:—

I don't say you are wasting time over Palæarctic mammals. It is a great thing for a man to have a special subject, of which he can become *master*; but the more he is able to generalise the better, and this especially in the matter of travel and observation in foreign countries. Hence my great regret that you are not going with Skeat, who (by the way) was here last night. A twelvemonth in the Tropics could not fail to do you a world of good. I know what a benefit it was for me to have been six months and more in the West Indies. A journey to Siberia would, of course, be very profitable to you; but it would not enlarge your view as to Nature in the same way that working in the Malay Peninsula would.

I always regret that I did not do more in the travelling way, but various obstacles presented themselves. I *ought* to have gone to the Cape and to Australia, to say nothing of the Sandwich Islands. †

* Letter to J. A. Harvie-Brown, August 17, 1874.

† Letter to G. E. H. Barrett-Hamilton, January 19, 1899.

CHAPTER XV

WORK AT CAMBRIDGE

FROM the time of his election to the Professorship of Zoology in 1866 until the end of his life, Newton never left Cambridge for more than a few weeks at a time, and for the greater part of that time, until within a few years of his death, when he appointed Mr. William Bateson, F.R.S., to be his deputy, he delivered a course of lectures in two terms of every year.

I began holding forth to-day and had a pretty good audience—30 or 40 at least—and 14 men were kind enough to inscribe their names on a board, which means as many pounds in my pocket ! I gave them some very heretical notions (according to some people's ideas) but wrapped up so judiciously that I believe even Clayton would not have been shocked.*

Dr. Shipley has mentioned in another chapter (p. 104), Newton's apparent shyness in lecturing : this was probably an expression not so much of shyness as of a strong distaste for the business of lecturing.

If I could afford it I would to-morrow give up part of my salary to pay a lecturer who would be more competent than myself, and such a man I could find easily enough, because I know that I am one of the worst of lecturers. In the first place, I never found myself getting any real good from lectures when I had to listen to them, and disbelieve totally in them. A man who does believe in them might, or assuredly would, do

* Letter to H. B. Tristram, October 22, 1866.

better than one who does not. Of course, lecturing is anything but the chief part of my duties, as I understand them, and the rest I flatter myself I perform decently.*

When the teaching of Zoology in the University was considerably changed about the year 1884, after the death of Francis Balfour, Newton went to the trouble of writing a course of lectures on Geographical Distribution, and another course on Evidences of Evolution. They were very correct, painstaking lectures, but unfortunately he found that they would not stretch over a whole term each, of three lectures a week. He announced that he would lecture on Monday, Wednesday, and Friday at twelve o'clock, but year after year he told the class that next Monday he would unfortunately not be able to lecture owing to urgent business; and this would continue throughout the term. He went instead on a weekly tour of inspection of some farms with the College Bursar, his friend F. Pattrick.

It is quite certain that he put little value on lectures as a means of teaching. What he thought of the University course of zoological studies, or what he would have liked to see substituted for it, is not so plain to see.

A course of Elementary Zoology is undoubtedly a good thing and I wish there had been such a thing in my younger days, but my experience of it here is that it is very apt to disgust or at least dishearten the man who is by nature a zoologist. If he can stand it, all the better for him; but it is only a groundwork, and the mistake so many people make is that after they have gone through the course they think they are finished zoologists.†

* Letter to Mrs. Strickland, March 18, 1874.

† Letter to N. B. Kinnear, February 13, 1907.

He never ceased to lament his lack of an early training in Zoology, and quite unjustly accused himself of narrow-mindedness. Such a charge could never be brought against the man who encouraged F. M. Balfour in 1875 to establish a class in Morphology, a subject of which he (Newton) was quite without knowledge; he gave up his own private room in the Museum to Balfour's class, and did everything he could to promote its success.

The narrow-mindedness of which I accuse myself has reference to other branches of science than Ornithology; in that I believe I have always been fairly afield, and if I had only had anything of a scientific education, such as boys and young men nowadays so easily get, I dare say I should have been more tolerant of conchologists and such like. You may imagine what a grind it was when, at 37, I had to get up the animal kingdom for myself and by myself in order to teach its nature to others! I often wonder if some of my earlier pupils remember the astonishing blunders I know I used to make. Fortunately, very few of my classes knew anything about the subject, and I used to contrive to make some of those that did teach me.*

He admitted frankly that the study of the *Invertebrata* had little attraction for him, and he heaved a sigh of relief when in the course of his lectures he reached more congenial Orders.

November 23, 1877.

MY DEAR LILFORD,

I have been busying myself, as usual at this time of the year, with animals very unlike birds; going through the customary course of Invertebrates and, as in each preceding year, becoming convinced of the hopelessness of anybody being able to comprehend the length and breadth and depth of them. These

* Letter to Col. H. W. Feilden, June 26, 1886.

qualities would puzzle even Solomon himself had he lived to these our days, only, like the wise man he was, he judiciously expired before Comparative Anatomy was invented, and so escaped the difficulty. I look forward, however, to reach my paradise of Birds once more some time next week and then, for anything I care, the "slimy things" may "crawl upon the slimy sea" just as they did in the presence of the Ancient Mariner, until October next.

Meantime Ornithology with me has been almost at a standstill; nothing seems to have occurred worth thinking about, nor have I heard of any shooting to deserve putting on paper. The most sporting character (observe the accent) in the University, namely the tutor of Downing, has nearly sent himself out of this world by trying to extract a thorn from his knee with a knife that he had used a few days before for cutting off a fox's brush, without cleaning the blade. Not only his life but his limb has been saved, but he has lost his liberty, and we the stories that are generally current about his sayings and doings at this time of year. Not many seasons ago the Duke of Cambridge hired the shooting at Six Mile Bottom, which used to be Genl. Hall's, and as there are certain *enclaves* of Downing property therein, he was advised to continue the General's policy of inviting some representative of that college to shoot. He did so, and this man went. When they stopped for luncheon the bodily wants of H.R.H. were attended to before those of any one else, and this Jack Perkins thought bad manners; so he exclaimed: "Why, Highness, if you came to shoot with me I should help you first; and when I come to shoot with you, I think you ought to treat me in the same way." I believe he has not since had the opportunity of being "helped."

Pardon me all this twaddle, and believe me,

Yours very truly,

ALFRED NEWTON.

While I think of it. I heard one of the best bulls yesterday. An Irishwoman giving evidence about her husband, strongly in his favour, was at last asked, "Is he a faithful husband?" and answered, "Bedad, then for that I couldn't say, sor, for my last child was not his at all." Ponder this.—A. N.

To the end of his life Newton always protested that lecturing was quite out of his line, and when he was dying he insisted on his nephew Charles burning bundle after bundle of lecture notes, lest they should fall into the hands of some misguided person, who might, perhaps, publish them under his name.

But the necessary course of professional lectures took very far from a first place in his activities. His friend and former colleague at the Museum, Mr. J. W. Clark, wrote of him :—

From the first day of his election Newton took a keen interest in the Museum, using this word in its widest sense. He was absolutely catholic in his views. Ornithology was his pet child; but all the other members of the Museum family were treated by him with affectionate regard, even down to the preparations of organs in spirit—which he never really liked, but submitted to as necessities. He made his friends and wide circle of acquaintances help him in the acquisition of specimens from all quarters of the world; and the rapid development of our collections is largely due to his energy. Without him we should never have had the skeleton of the Extinct Manatee (*Rhytina*), the White Rhinoceros, the Extinct Ox (*Bos primigenius*), and many other rarities.*

The skeleton of the *Bos primigenius* mentioned by Mr. J. W. Clark came from Burwell Fen, between Cambridge and Ely.

* *Cambridge Review*, June 13, 1907.

Nothing new of importance, except that I have got through William nearly an entire skeleton of the most lovely *Bos primigenius*, which I intend shall be the envy of the world. I am going to have a further search made for the missing bones, but as it is it is wonderfully perfect. Such a monster! He was quite at the bottom of the peat resting on the clay and must therefore have come to his end in very early days. Also there could have been no wolves or foxes about or they would have run off with some of the small bones—whereas we have 7 out of the 9 tail vertebræ and the bones of the tongue (hyoid). I got it, too, very cheap, which is an additional advantage. A neighbouring curate hearing that the men were digging up a bull came after it for the Bury Museum while William was there and had the head in a cart covered with a sack. His reverence tried to make the men discontented, but William held his peace.*

One of the friends who was always ready to help him in acquiring specimens for the Museum was another Magdalene man, Charles Kingsley, who wrote after a voyage to the West Indies in the winter of 1869–70:—

March 10, 1870.

MY DEAR NEWTON,

Your letter explains. I wrote a long letter to Clark the day after I came back, bidding him send it on to you and sending you messages, and had no answer.

I have brought all I could get. Snakes (some very rare) and bats. The niggers have shot all the birds.

I asked Clark, or you, to come hither, or both if you could, see us, and see what you wanted to carry off. They are few, but more are coming. If you will let me know whether you can come or not, I will write

* Letter to Mrs. Strickland, April 25, 1874.

more fully. We had no opportunity of using your kind introduction at St. Thomas'.

The West Indies are a neglected Paradise. What *fools* human beings are—specially English!

Ever yours,

C. KINGSLEY.

P.S.—I have, I hope, opened a regular trail from the West Indies to the Museum.

Kingsley was for many years a close friend and a frequent, but illegible, correspondent of Newton, who suggested to him the references to the Great Auk in "Water Babies." The following characteristic letter was with difficulty deciphered:—

Eversley Rectory,

June 4, 1867.

MY DEAR NEWTON,

Your bird books are delightful. Gladly would I give up History to think of nothing but dicky birds: but it must not be—*yet*.

Some day, ere I grow too old to think, I trust to be able to throw away all pursuits save Natural History, and die with my mind full of God's facts instead of man's lies.

Yours ever,

C. KINGSLEY.

On the back of this letter Newton wrote:—

Froude informs the Scottish youth
That parsons have no care for truth.
The Reverend Canon Kingsley cries
That history is a pack of lies.

What cause for judgment so malign?
A brief reflexion solves the mystery.
For Froude thinks Kingsley a divine,
And Kingsley goes to Froude for history.*

* These verses are quoted in Froude's obituary notice in the *Times* of October 22, 1894, and are there attributed to "the present Bishop of Oxford [Stubbs]."

Another of his activities, though necessarily less public than those already mentioned, was his practical help to young men who may have attended his lectures or his Sunday evenings, in their efforts to obtain work after leaving the University. The editor of this memoir has received at least a score of letters from people who have asked him to record Newton's sympathetic help to them, often unsolicited, when they were making their first flights from Cambridge. The following letter, written to a young graduate already embarked on the career of Medicine, would almost have persuaded most people to follow the unprofitable (in a worldly sense) line of zoological research :—

I suppose I ought to congratulate you also on winning the Surgical Scholarship, and if it makes you any the happier I would do so ; but I do view with jealousy anything that binds you closer to your "profession," a very good and noble one I admit it to be, but I would much rather see you devoted to *Zoological Science*, in which the harvest is plenteous and the reapers, so far as I can see them, so few.

I have the highest opinion of Lord Lister, but I would far sooner be a John Hunter or a Cuvier. The professional man is very good, but the unprofessional, with no other aim than that of advancing knowledge, is far better, and there are, unfortunately, so few men comparatively who can follow science (as I believe you can) regardless of professional success, the plain English of which is *fees* !

However, we must be thankful for what we get, and if a professional man of first-rate ability will but occasionally devote a little of his spare time to purely scientific (and unpaying) questions, we ought to applaud him, and be grateful for the small mercy.*

* Letter to P. H. Bahr (now Dr. P. Manson-Bahr), March 26, 1907.

A duty in the University which fell to him very soon after his election to the Professorship of Zoology was that of Chairman of the Special Board of Biology and Geology, which he occupied with conspicuous success for many years.

As to my Chairmanship of the Special Board to which I belong, I was chosen to it years ago, and in every year I have made a *bonâ fide* offer to make way for anybody who would like to take my place; but they seem to think my government divides them the least, and so I am suffered to remain—perhaps as a King Log! But I am bound to say that we are a most harmonious body, and my subjects are content to discuss matters peacefully. We do discuss I can assure you (and on Saturday I sat for nearly 4 hours), but as becomes philosophers. In other Boards I understand this is not so, and personal wrangles (to us unknown) are frequent. Seriously speaking, the self-abnegation of our biologists—many of them, be it borne in mind, young men of ambition only equalled by their capacity—in regard to the interests of the University, hampered as they now are by financial difficulties, is beyond any praise that I can bestow.*

A Cambridge institution in which he always took a keen interest was the A.D.C., more particularly when a Greek play was to be given. Mr. A. C. Benson, the present Master of Magdalene, writing in the *Cornhill Magazine*,† recalls his first meeting with Newton during a rehearsal of the *Birds of Aristophanes* in 1883:—

We, the performers, were sitting about in full dress at one of the last rehearsals, when a strongly-built man of about fifty, leaning heavily on a stick, with a brisk alert face and bushy grey side-whiskers, came into the

* Letter to Canon H. B. Tristram, November 26, 1888.

† June, 1911.



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Sketch by C. M. Neale

THE PROFESSOR.

room with one of the Committee. He seemed to me to bristle with decision and alertness. He wore an old-fashioned tall top-hat, very high in the crown, with a flat brim; and a short full-skirted tail coat. He looked sharply from bird to bird, and then said suddenly, "That scarlet Ibis is all wrong; the *head* ought not to be scarlet—it is preposterously absurd; it must be darkened at once."

The Ibis was the headgear of a friend of mine, Willy Boyle, an extremely good-natured, able, rather indolent Eton man, with much musical ability. He took off the head. It was a pleasing object, made of a long-haired rough red plush, with a curved black beak and large, shining, roguish black eyes, represented by means of a sort of glazed metal stud.

Some paint was brought, and Professor Newton daubed over the bird-head with it, giving a dusky draggled air. The owner looked on ruefully. The Professor said sharply: "There; that is better now, but it is still ridiculous. An Ibis with a scarlet *head*! Whoever heard of such nonsense?" It was not better at all; it was much worse, though perhaps it was ornithologically correct; but it sacrificed a pretty point of colour. . . . That was my only sight of the Professor at that date. He seemed to me to be decided, brisk, peremptory, not very good-natured, not a man to oppose in any way.

Newton wrote to his friend Lord Lilford about the same production of the *Birds*:—

December 4, 1883.

MY DEAR LILFORD,

I suppose Aristophanes had not a much more definite notion of an Ibis than he had of a Phoenix. He had heard of both and so mentioned their names. The great drawback to the performance here was the very small size of the stage. Had there been room for the men to stand, the members of the chorus should

(and would) have been doubled. As it was they were crowded so as to interfere with the effect, and their wings had to be made so short as to seem ridiculous. But it is, I am sure, a mistake to attempt a Greek comedy. It was pitiable to see an educated audience convulsed with laughter just because one fellow is giving the stick to another, and there is a great deal of stick work in the play. No one enjoys more than I do seeing the clown pursuing a policeman with a red-hot poker and any rough work of the kind in a pantomime, because it is according to nature—otherwise the red-hot poker would not have been there—but it does not seem natural for Greeks to indulge in common buffoonery. It grated upon one's ears to hear the men laugh in English; one expected that they should have done it differently and I would have had them laugh in Greek if that were possible. . . .

Yours very truly,

ALFRED NEWTON.

Twenty years later the *Birds* was played again at Cambridge, and Newton was much vexed by the producers' attempt to introduce the Scarlet Ibis, the Rosy Spoonbill and the Blue Jay, all American birds, in place of the more sombre members of their families known to Aristophanes.

Simultaneously the Greek play *The Birds* is coming on this next week, and I am going to a rehearsal of it to-night. The last time they did it, they made a very pretty thing of it, and I hope this time it will be as good. I have had some trouble to stop the appearance of a *Platalea ajaja* in the chorus, just as on the last occasion I had with *Ibis rubra*, which, as I dare say you know, is in the popular mind the Sacred Ibis. I remember a picture painted by an R.A. in which it was introduced in the courtyard of an Egyptian temple, with Pharaoh's daughter or Potiphar's wife feeding it!*

* Letter to G. E. H. Barrett-Hamilton, November 21, 1903.

The Birds are doing beautifully. To my disgust they dressed the Jay after *Cyanurus cristatus* instead of the Greek form of *Garrulus glandarius*. It does not so much matter as people take it for a Roller, which it might well be had the ancients known that bird, and it seems as if they didn't, at least they never mentioned it.*

It was, however, in his own rooms in College, the old Master's Lodge, that Newton's influence was most widely felt. There he was at home to his friends every Sunday evening during term time. After crossing the bridge and passing the gate of Magdalene you came immediately to what appeared to be a stable entrance to a slippery and stony yard. Across the yard was a narrow and ugly door, through which, after struggling with a recalcitrant bell, you were admitted into a dark passage leading into the Professor's rooms. Newton delighted in hospitality and nearly always invited one or more friends to dine with him on Sunday. If it was your fortune to be a guest, you were bidden, rain or no rain, to leave your College cap in his rooms, and then you proceeded—"processed" is rather the word—with him across the garden and through the hall to the high table. Dinner was a heavy and thoroughly British affair of roast beef or turkey and plum pudding, which may have become irksome to the Fellows of the College, who perforce dined there regularly, but it was interesting to the infrequent visitor, who found that it agreed well enough with the setting, and there was a charm about Newton's courtly action of "taking a glass of wine" with his guest and with others up and down the table, which none of them is likely to forget. The conversation was sometimes almost startlingly in keeping

* Letter to G. E. H. Barrett-Hamilton, November 27, 1903.

with the dinner, and the present writer will always remember one night in a Long Vacation when he dined alone at the high table with the Professor and the Master, Neville.* We, or rather they, talked of the Bedchamber Plot as of an affair of yesterday, and the bewildered guest began to have doubts about his own sobriety. After dinner an adjournment was made on Sundays to the Combination Room. This involved a steep climb up a rather slippery wooden staircase, but Newton always refused assistance, preferring the use of his two sticks. It is (or was) the custom to take the dessert and port wine sitting at small tables about the fire-place, and it is the duty of the junior Fellow to see that the wine is passed and so on. When many guests were present the decanter was apt to get delayed in its progress, and Mr. Benson records that "the Master once innocently suggested that for a change we should sit round the big oval table. The Professor was speechless with indignation, and sate sullenly through the proceeding, scarcely opening his mouth except to say that he would hardly have known the place."

Nothing vexed him more than innovations: what was the custom in that place was right, and there was no more to be said. But he was always genial and full of talk, and after a second glass of port wine he departed with his guests to his rooms. There you would find a blaze of gas (to this was added in later years electric light), a semicircle of not very comfortable chairs set about the fire, which was nearly always lighted, and a tray containing cups and a pot of the strongest brew of coffee.

Whilst the Professor was changing into a thin, black coat made of a sort of cashmere material, which he wore

* Latimer Neville, 7th Lord Braybrooke, Master of Magdalene, 1853-1904.

on these occasions, the guests had time to look about the two rooms that were visible to the ordinary visitor, and it must be admitted that there was little that was pleasing to the eye. The walls, so far as one could see them, were covered with an ugly drab-coloured wall-paper, the floors with threadbare carpets, and the furniture lacked beauty. Everywhere were books, on the tables and chairs, on the floor and in book-cases about most of the walls. Piles of papers and bundles of letters were on the top of the books, and one might think that the disorder was complete, but the Professor knew where everything was, and when some point arose, which demanded a reference, as often happened, he went unerringly to the right spot. One or two water-colours, a few rather dingy portraits hung high on the wall, and a beautiful drawing of a Gye-Falcon by Wolf were all the pictures that the book-cases allowed. An adventurous visitor who looked into the Professor's bedroom would have seen a huge four-post bed, and if he got so far as the spare bedroom, the "Cowshed" as it was called—it was built on the site of the old cow-house of the Master's Lodge—he would have received an impression of a brilliant blue wall-paper and of little else. It must be confessed that Newton had little or no sense of the beautiful, at least as it appears to the younger generation.

Coming back to the inner room, where the coffee was set out, one would find the Professor sitting in a tolerably easy chair just inside the door: beside him a table on which were a cup of tea, a blue porcelain jar of tobacco, several pipes, a box of Russian cigarettes, and a number of half-sheets of paper, of which he made innumerable spills during the course of the evening. He seldom used matches, and preferred to light his pipe with a spill from the fire. This, for a heavy man with

two lame legs, was a toilsome business and involved much exertion in hoisting himself out of the chair and returning to it again, but he resented assistance in such things. A stranger, unaccustomed to his ways, who ventured to offer him a lighted spill, was rewarded with a piercing glance and—"You're very good (a favourite phrase of his), but I can help myself."

Between nine o'clock and midnight the cracked door-bell would ring at intervals, and from half a dozen to twenty visitors would come to see the Professor: undergraduates and dons, old Cambridge men, travellers, men of all ages and conditions. Conversation was general, and though it was often of a scientific kind, it was by no means so always. The Professor delighted in humorous stories, which he often told exceedingly well, and he had an abundant store of reminiscences of people. Like many men of respectable stock he had a high appreciation of "family," and he often knew more of his visitors' family histories than they knew themselves. As somebody said, all genealogists are related to each other.

If he liked successful and distinguished people, he was equally glad to see those who had not yet made their mark in the world and to help them, if it were in his power to do so. When sons or relations of any of his old friends came up to the University, he was at pains to seek them out, and he was genuinely disappointed if they did not come to see him.

I feel inclined to quarrel with you for not having put me in the way of knowing "young Candler." He came to my rooms on Sunday night, brought by a young Jesse, son of the Abyssinian man, who has been equally culpable in not letting me know sooner of his existence. Candler seems a very good sort of fellow indeed. I hope he liked his evening and will let me see

more of him. It is a real pleasure to me to know men, especially young men, of this kind. I know by my own feelings what benefit I should have got, if in my undergraduate days I could have been acquainted with anybody a good deal older than myself who would be willing to help me. It will be his fault if he does not avail himself of the chance.*

The ugly rooms, the hard chairs, bitter coffee and blazing gas do not make an attractive picture, it would hardly be expected that men would go there again and again, whenever they had the opportunity. It is the fact, however, that the many people who have assisted the present writer in his work have been unanimous in bidding him not to forget "Newton's Sunday evenings," and some of them have even said that they remembered them with more pleasure than anything else in their time at Cambridge. It is difficult, often impossible, for most people in after years to remember who was the person, if person there was, or what was the occasion, that pointed out for them their line of life; but it may surely be said that many a career of adventure or research could trace its origin to the Old Lodge at Magdalene.

It will not be considered unfitting to record here the account written by a distinguished traveller and naturalist, Dr. F. H. H. Guillemard of Gonville and Caius College, of his friendship with the Professor, which began when he was an undergraduate and continued during nearly forty years.

. . . When I returned to Cambridge from Lapland in October, 1872, I attended Newton's lectures for the first time. The manner of them has more than once been described. They were, I think, on the anatomy of the

* Letter to T. Southwell, February 27, 1891

Vertebrata, but I am by no means sure, for I certainly took no notes, and I do not think that any of us paid much attention to them, though there was that about the lecturer that made what is now termed "rotting" or anything like bad behaviour quite out of the question. They were delivered with a sort of professed perfunctoriness. He seemed to say aloud, with the old-world courtesy that was so characteristic of him, "Gentlemen, I am aware that this must seem to you rather dull stuff, but it is my duty to deliver it, and I must ask you to be kind enough to listen to it with patience." He read these effusions standing and partly propped up by a high stool; now making hasty dives at a tumbler of water, of which he would absorb a couple of quick gulps, now mopping a heated brow with a large handkerchief. I feel sure he hated these lectures. If only he had taken bird migration or distribution as his subject, how different it would have been! But in those days such studies would have been considered trifling, and altogether beneath the horizon of professorial teaching.

I suppose it was at the opening lecture that we inscribed our names. Seeing mine, he inquired what relation I was to a member of my family whom he knew. I told him. He then asked, I suppose by way of something to say, where I had spent the Long Vacation. My reply of "Lapland" fairly galvanised him. "What! Lapland! What did you go there for?" "Well, sir, chiefly after birds." "Birds! Look here, what are you doing on Sunday next? Come to my rooms in Magdalene at half-past eight." And thus—now, alas! nearly fifty years ago—began our friendship.

Nowadays, of course, an invitation such as this is common enough, and I understand that the undergraduate occasionally even calls his tutor by his Christian name. But this was certainly not the fashion at the period of which I speak. The don in those days as a rule only bade you to his rooms for the purpose of gating you, so I was proportionately impressed and

presented myself at the hour appointed. Newton's rooms have been described by Mr. Benson in his "Leaves of the Tree," and I think he does them considerable injustice. For him they were the last cry of the mid-Victorian epoch, of a type calculated to make the strongest æsthete shudder. I am rather abnormally affected by my surroundings, but I never experienced in them any such feelings of artistic malaise. Books, to my thinking, are the most seemly of all wall adornments, and with books the walls of Newton's sitting-room (for in those days he had but one) were almost entirely covered, and, I might add, the chairs and sofa also. There was, it is true, but little in the way of decoration, but what there was was good. Immediately over the door by which one entered hung a magnificent pair of reindeer horns—the spoils, I fancy, of his Lapp journey, and facing the wide French window was a beautiful watercolour of an Iceland Falcon by Joseph Wolf (the one man, as Newton used always to say, who could draw the birds of prey). Another, or rather a colour print, by the same hand, hung over the mantelpiece, and in later days a Japanese kakemono by a celebrated artist, representing a skein of geese dropping down to the water, occupied the only book-free space on the window side.

Newton's manner with unfledged youth was very kindly and reassuring. He talked to them as equals, which seemed strange to us in those days when the gulf between don and undergraduate was of unfathomable depth, and soon made them feel as much at their ease as was possible in the early 'seventies. We sat rather close together, the room being small, and I remember being rather astonished (so different were things then) at the presence of tobacco and spirits, the latter, of course, being in the form of brandy, for whiskey was at that time a fluid almost unknown to the southron, though I had made its acquaintance in the Orkneys. Strangely enough, I can recall but few of the early habitués of Newton's salon. There was E.

Knubley of Magdalene, a "birdy" man; Frank Balfour, very popular, of course, with everybody; Richard Lydekker, *tiré à quatre épingles*, as the French say, a great swell with a future before him in the world of science; and Ernest Muggeridge of King's,* the only non-Etonian of the thirteen undergraduates of that College, a keen entomologist, with whom—in company with our present Slade Professor of Fine Art, Edward Prior—I used to make excursions to the Northamptonshire woods. Frank Darwin I remember, and G. R. Crotch, University Sub-Librarian, a mighty beetle-hunter before the Lord. Duppa Crotch too, I believe, was often there, though I think at a somewhat later period—Shakesperian and autophagist. For, with what truth I know not, the story ran that while chopping wood one day he inadvertently severed a digit. To take it to the cook and order it for dinner was, as the reporters say, the work of an instant. Anxious, as a true student of Nature, to prove everything, he was loth to lose such a God-sent opportunity for a blameless cannibalism. Later came Adam Sedgwick, Bateson, Marr, Dr. Sharp, A. H. Evans, Barrett-Hamilton and a host of others well-known in the world of science to whom I need not further allude.

Newton welcomed me very warmly that first evening, I remember, and questioned me about where I had been and what I had done. I felt that in his eyes it was something to be an habitué of Stevens's, more to have worked the Copinshay cliffs in search of eggs, and still more, perhaps, to have camped on the Qvikkjokk fjells. But although these facts may have prepossessed him in my favour I really ascribe the special warmth of my welcome

* Muggeridge was a man of very fine character and most lovable disposition. He was a great friend of Henry Bradshaw, who wrote "No one can ever know how much I owe to Ernest . . . as any one must who saw much of him and did not find the strength in himself to do the right which he knew he ought to do. . . . The memory of such a friend is a thing to help one on in life as few other things except his living self could do." He died in Hongkong in 1879, and years afterwards I sought in vain for his grave in the "Happy Valley" there. His remains, as I later discovered, had been brought back to England.

to quite a different and much more trivial cause, but one so characteristic of Newton that I cannot omit it here. The Professor's pipes, of which he had many, each being in turn allotted its spell of work, were all precisely similar. They were of briar, a short quadrangular basal stem carrying a stout bowl with a chamfer at the mouth, below which was a single ring of fine beading. The real stem was of chicken bone, fitted in with a cork plug. When, being asked if I would like to smoke, I drew a precisely similar article from my pocket, Newton was delighted. There could be no stronger evidence of my common sense and intelligence, and from that moment I was "approved." After that, I believe, I might have proclaimed myself a Socialist, or proposed that women should dine in Hall, or spoken of S—— as the greatest living ornithologist with impunity. All would have been forgiven.

That first evening was the forerunner of countless others. For, though I ceased to be resident after taking my degree, and for many years was *incertæ sedis* as the phrase goes—a wanderer over the earth—I always came back to Cambridge to work up my collections and always went to Newton's Sunday evenings as a matter of course. That was the great thing about Newton—one always found him where one left him, not only socially, but topographically. One might brave the Arctic ice or disappear for a year or two into the heart of the Dark Continent, but when one returned with no little of the Rijp van Winkel feeling at heart, there was Newton sitting in his chair making spills, just as one left him. It almost made one wonder whether all our past adventures were not a dream, and our moving accidents by flood and field mere figments of the imagination.

No one, indeed, could be more immutable than Newton in his daily doings, which were all ruled on the Medo-Persic plan. I do not precisely remember his hours, but I am pretty certain that a good deal of his work was done at night, and hence—though hardly in

the running with Bradshaw—he was not a very flagrant early riser. His daily wayfaring to the Museum was an affair which called for no little effort on his part, for his great lameness—much accentuated by the accident that befell him in Heligoland—made him a “four-legged man”; he used a stick in each hand and his rate of progression was not rapid. In his room at the Museum he sat with the door open, and was thus enabled to waylay any passer-by with whom he wanted to talk. His lunch consisted usually of a glass of sherry and a biscuit of the nature of a “Captain’s,” or first cousin thereto, and when, for some reason which I do not recall, these odontoclastic delicacies became unobtainable, the whole tenour of his life seemed in danger of being upset until it was discovered that the College cook could produce an article equally solid in substance if not superior in merit. By this Spartan diet he was supported until dinner-time, at which meal he played a good English knife and fork, keeping up with marked gravity of ceremonial the old-fashioned custom—confined nowadays, alas! to his own College and that of Magdalen, Oxford—of “taking wine” with his guests. Though not intolerant of the “beaded bubble winking at the brim” it was the more serious vintages of the Peninsula which chiefly appealed to him. A mutual friend reminds me of the appreciation with which he held a particularly attractive glass of port to the light and murmured “How old Kingsley would have lapped this up!”

A more congenial neighbour at dinner no one could wish for, but he was at his best with a small party of “birdy” friends where conversation was more or less general and the political atmosphere purged of “all those d——d Radical ideas” which found such scant favour in his sight. To put it mildly, Newton was no Progressive. In his eyes alteration of any kind was the one unpardonable sin; change little short of a crime. I feel sure that the donning of a new suit must have caused him actual pain, and he avoided inflicting it as

much as possible. The pea-like similarity of his little black silk ties must have mitigated his anguish in the matter of what is now gracefully termed neckwear. As a thing was, so it had to be, whether in habit of body or of mind, and hence he did not readily adopt many of the latter-day views in ornithology. Of all men I ever knew he was the least carried about with every wind of doctrine. Trinomialism was abhorrent to him—it certainly threw a shadow over his later years—and the *Turdus turdus turdus* craze rendered him well-nigh speechless. I wonder what he would have thought of cubism had he lived to see it! Not that he was in the least averse from new ideas in his favourite science so long as they came, so to speak, with good introductions. He held an open mind with regard to classification, and indeed (good naturalist as he was) was quite capable of embracing subversive, if not revolutionary views did the arguments in favour of them but hold water. He welcomed, or was even the actual initiator of, many new developments of ornithology, notably those connected with Migration and Close-time, which I need not enlarge upon here. But at bottom, as I have said, he was a Tory of the Tories, and oftentimes, too, in rather unexpected ways. One did not always detect from afar the red flag which induced the vehemently taurine attitude.

With all his classical leanings Newton was not a particularly “booky” man. Apart from travels and scientific works, with which he kept himself thoroughly *au courant*, he did not trouble himself much about the moderns, but it would not have been easy to mention any pre-Edwardian book that had won its way to fame with which he was unacquainted, whether fact or fiction. Thackeray was a special favourite. I cannot now recollect whether he knew him personally, but I well remember his description of a joyous individual, Arcedeckne by name,* from whom, he told me,

* This, no doubt, was Andrew Arcedeckne, son of Chaloner Arcedeckne, who matriculated at Christ Church, Oxford, February 6, 1798.

Thackeray drew the character of Harry Foker, and how he went up after the finish of the lecture on "The Four Georges," slapped Thackeray on the back, and said "Splendid! old cock, but why didn't you have a pi-anner?" Those who knew the subject of these notes will picture the appreciative quakes which shook his abundant waistcoat in relating the story. It did one good, I may remark parenthetically, to see Newton laugh. I do not think I ever knew any one—unless it was Arthur Hilton, the inimitable author of the *Light Green*—whose face, nay, whose whole figure, were (on occasion) more vividly expressive of mirth; though, it must be confessed, they could equally well express other moods when necessary. It is rather difficult to realise that any one so meticulously careful can have been a whole-hearted lover of fiction, yet such no doubt he was. That wonderful book, "A Dictionary of Birds," shows no evidence, save that of a catholicity of reading, by which one might detect it. His was, indeed, a peculiarly tidy mind, and if he were not accurate I do not know who could be thus described. He would take immense pains about a verification, and always had chapter and verse under his hand, like Robertson Smith. There was no shadow of slackness about him, and one instinctively tightened up one's ordinary diction when in his company. He did not like "zoo" or "rhino." I wonder what he would have said could he have seen the legend on a parcel sent me not long ago—"Photos on appro. for repro."! He held the pen of a good, if not a ready writer, and expressed himself in excellent clear nervous English, though I remember his lamenting to me that he wrote slowly. He was a capital letter-writer, though I became aware of this chiefly from his letters to others, notably those to his lifelong friend Lord Lilford, for in my journeys I was seldom in very

Lord Huntingfield, his relative, who possesses his beautiful gold-headed cane, tells me he was said to have been much like a seal in appearance, and hence Thackeray's name of Foker (Latin *Phoca*).—F. H. H. G.

accessible places, and at home we lived too close to render writing necessary, except for dinner invitations. In these his old country-house habits came out, and he would often say, "There is a good moon now, will you give me the pleasure of your company (I think it was always 'the pleasure of your company') on Sunday next."

With the advance of years Newton's infirmities evidently became a greater trial to him, but he bore them bravely and seldom spoke of them. One by one his own people had passed away before him and he grieved over their going. "I am the last of my generation," he would pathetically and curiously often say. Then it became evident to him that his own days were numbered. The call came lingeringly, and he fought the enemy inch by inch. Near the end he rebelled against dying in his bed and directed that he should be placed in his arm-chair. "Here will I meet my fate," he said, in quaintly stilted phrase; and in his chair he died.

In the light (or, should I not say, the darkness) of these post-bellum days, Newton must be accounted an extinct type, as extinct as the Great Auk and Dodo of which he loved so much to write. Such strength of individuality I cannot recall in any other person I have known. It can safely be said that, having carefully envisaged his question and decided it, no human power could make him alter his mind. Yet one almost hesitates to say it, lest a wrong impression should be conveyed, for he was one of the most lovable of men, and inspired an unusual degree of personal affection in the many young men who frequented his rooms. The influence he exercised upon them was remarkable, not only upon the ornithologists, but upon men like Adam Sedgwick, Bateson, Frank Darwin, Lydekker, and a host of others in different fields. It would, I think, be correct to describe him as the founder of the modern Cambridge scientific school, developing the good seed sown by Henslow, who was to a former

generation, I imagine, very much what Newton was to mine. God rest his soul! How I wish I could bring him back! There are few of whom I have such kindly recollections.

F. H. H. GUILLEMARD.

1920.

CHAPTER XVI

LATER YEARS

ALTHOUGH, as has been stated above, Newton's home during the last fifty years of his life was at Cambridge, it must not be supposed that he spent all his days in museums and libraries. He was, first of all and by nature, an out-of-doors man, and in early days he was a keen game shot. "Here I oscillate between a gun and a proof-sheet," he wrote in September, 1870, from Bloxworth, in Dorsetshire, where he spent a part of every summer with two of his sisters between 1866 and 1886. He was a large and powerfully built man, and in spite of his lameness he could move about rough country with astonishing ease. At one time or another he made expeditions to many of the remote parts of Britain, and nothing delighted him more than days spent in watching birds.

The chief thing I have to tell you of is a charming day at Pentire, a headland on the N. coast of Cornwall. When I wrote last I think I told you I had got Gatcombe to arrange for an expedition in search of Choughs. We started about 7 o'clock in the morning and went by rail to Bodmin Road Station, where we had a carriage to meet us, and getting into it passed through Bodmin (just like an Irish town) and Wadebridge. Thence we bore to the right to a place called Trevornan, a comfortable old house where lived a cheery old lady whose nephew, a certain Mr. Darrell Stephens, was the man who was to show us the Choughs. He is a very good sort of fellow, some 21 or 22 years old, preparing

to be a land agent, and to that end he has been learning his business under Baron Hambro's man at Milton Abbey where, having a great taste for botany, he had become acquainted with Mansel-Pleydell.

As it was still early we declined being "refreshed" and almost immediately started again in the carriage, taking Mr. Stephens with us, and so went some 2 or 3 miles to the sea, along the right bank of the river that runs through Wadebridge, our drive ending by crossing a beautiful hard sand, for the tide was out. Then we sent the carriage to a neighbouring farm-house to wait for us and took to our legs, scrambling up the cliff and along it towards Pentire Point. A great part of the cliff here is steep for say 200 feet above the water with a steep grassy slope above it.

Mr. Stephens was very keen about the rare plants that grew here, but I am afraid they were rather lost upon me, though I could well admire the enormous number of wild flowers which made the turf quite bright with all sorts of colours. I don't think too that I ever saw more butterflies at once, a great many of one of the "Blues," which, by the way, exactly matches in colour the flower of the Squill which was growing in abundance. There was also a great number of *Colias edusa*. We were scarcely ever out of sight of one, and I hardly exaggerate when I say that in some spots they were in *flocks*. As we kept ascending towards Pentire Point the view became more and more extensive and beautiful; but of course our chief object was the Choughs, which Mr. Stephens had seen constantly for some weeks past. The cliff and slope were broken in places by little ravines, "gugs" they call them, some of which we could cross while others it was better to walk round. Just as we were climbing the side of one of them, rather a shallow one, we all three heard a note which was perhaps most like a jackdaw's of any I had ever heard, but still unmistakably different. I knew at once it must be a Chough's, and looking up we saw on the wing 3 black rook-like birds that seemed to

have risen from the cornfield that skirted the slope and was bounded by a stone wall. They flew on and disappeared over the ridge and Mr. S. said they would be seen to settle on the rocks. When we got to the top of this ridge we found ourselves almost at the end, of the slope, for the other side of the next "gug" was precipitous almost to the top.

I may say that the slope is so steep that though it abounds in rabbits Mr. S. says it is difficult to get them, for when shot they roll down into the sea; in places it must be 200 yards wide at least.

Well, at first we could see no Choughs, but after a while we made out first 2, and then the third, sitting on the side of the cliff, and then getting as near as we could we lay down and watched them with our glasses. Two of them, a pair I should think, sat quite close together and were preening their feathers. It was a bright cloudless day and as they sat in full sunlight we had a capital view of them with the beautiful purple gloss (which was quite plain) on their feathers, and their red bills and legs, the last, however, not so bright as I should have expected. These birds were not content with arranging their own feathers but they frequently trimmed one another, especially their heads, and one could see one bird shut its eye while the other was carefully picking round it. These two birds seemed to take no notice of us, we were perhaps just out of ordinary gun-shot, but the third was more fidgetty and kept jumping from one rock to another and every now and then calling out. I could have stayed watching them much longer, but we had to be going on; so after half an hour, or perhaps not so long, we proceeded, and then after a short flight or two they rose up and came back over our heads within easy shot. On the wing they look much more like Rooks, indeed one might have some trouble to distinguish them, but their wings seem larger in proportion to their bodies, just as Stock-Doves' are larger than Ring-Doves'.

These birds we saw no more. By and by we got to

the headland, where the view was really magnificent, the whole coast, from Hartland Point in Devonshire to, as they said, Cape Cornwall, being within sight. However, I think it is impossible we could see Cape Cornwall, and that our furthest point to the westward was the Gurnard's Head; but that is close to it. Pentire is so high that you see over some of the intervening points, Trevoise Head in particular, which juts out much further from the regular trend of the coast. In the distance we had Lundy Island. I don't know when I ever saw such a bright day, everything seemed to sparkle with light. Inland to the eastward we had Row Tor and Brown Willy, which are near the Cheese-wring, and I was pleased to find I recognised their outline, though I had never seen them before from this position. To the south was the estuary of the river on which Wadebridge stands, with a great bar of sand across it, and another river that comes from Padstow. But all the interior of Cornwall is alike (except the wooded valleys), and our eyes were chiefly seaward, as the shore immediately below us we could not see.*

In the summer of 1882 an unfortunate accident crippled him still further.

My summer has been one of shattered hopes. A friend of mine, Woodall by name, agreed to take Tristram and myself for a cruise in his steam yacht to Heligoland and Denmark, and accordingly we went on board the *Garland* at Yarmouth on the morning of June 1. We did not get off, however, for two or three days afterwards, owing to the weather; for our yachtsman, even when he has a tea-kettle to rely upon, does not like knocking about in a head wind.

At last we had a fair run to Heligoland, and a most enjoyable interview with Gätke and his marvellous collection.

Mrs. Governor of that important dependency was

* Letter to Edward Newton, September 19, 1877.

bent upon hearing Tristram's eloquence, and, accordingly, after being there 2 or 3 days, we departed, promising to bring the Canon back to fire off the following Sunday.

In the meanwhile we went to Bremerhaven, and then by land to Bremen and Hamburg, looking up friends ornithological and otherwise at both places. We attempted to return to Heligoland to fulfil our promise, but were blown back to the Weser, and there passed 2 or 3 days uselessly. At last we did reach Heligoland again, and meant to be off at daybreak next morning for Jutland, where I had in view a visit to several happy hunting grounds — Avocet, Black Stork, and other nice things. But the glass fell and the wind rose, so we had to lie in the roadstead some days more. The gale was so heavy that we broke an anchor, and had several other little misadventures, while every hour our chance of going to Denmark diminished; for both Woodall and Tristram had engagements at home they were bound to keep.

When the weather in some degree moderated we went ashore, to dine and sleep at the Governor's house; and coming back the next day, as I was stepping into the boat from the pier, the big tendon of my *sound* leg snapped just above the knee-cap. I, of course, collapsed; but it is impossible to exaggerate the kindness of everybody, and after a surgeon had come off to the yacht and built up a wall of plaster of Paris and tow along the whole length of my leg, we got under way for Yarmouth direct. Arrived there (and coming in for another gale on the way), I was brought to London, and was laid up for more than two months at my brother's house. All went well, however, I am thankful to say, and towards the end of August I found I could walk with 2 sticks very fairly.*

That was the end of his more active days, and thenceforward, to use his own expression, "from a

* Letter to Rev. A. C. Smith, October 5, 1882.

three-legged I am become a four-legged man." Many people would have been embittered by such a calamity, but Newton was never heard to complain; and he even made light of it in writing to his brother Edward. No man ever had his days more fully filled than were his. Among his papers was found a printed form for the publication of the first issue of "Who's Who," and against the heading of Amusements was scribbled, in his handwriting, "No time for any."

Happily, however, his double lameness did not keep him a permanent prisoner at Cambridge, and for many years he joined his friend, Henry Evans, of Derby, in cruises about the British Islands.

Sir Archibald Geikie, who was his fellow-guest in many of these cruises, writes:—

Year after year "Alfred the Great," as Evans used playfully to call him, was received with open arms, not only by his host, but by every member of the crew. And no one could look forward with keener zest to these holidays than Newton, when for some weeks he could escape from the cares of University life to the firths and sounds of the north and west of Scotland, where no letters could reach him, even if he had left an address behind him, which he was generally careful not to do. Nowhere could he be seen to be more completely in his element than on board of the *Aster*. He loved the sea and its associations with such a sturdy affection that inclemencies of weather, by no means infrequent in those regions, never drew from him the least sign of impatience, or seemed in any degree to disturb his habitual cheeriness and his enjoyment of the cruise. Clad in the light-grey tweed suit which did duty on these voyages, but without top-coat or waterproof, he would sit for hours on some exposed part of the vessel, smoking innumerable pipes and watching for every variety of sea-fowl that might show itself either in the

air or in the water. In the course of a few days sun, wind, rain, and salt spray told on his complexion, which then assumed a ruddiness that would have astonished the inmates of Magdalene College. The sharpness of his eyesight in the detection of birds on the wing, even, when he had nearly reached the age of seventy years, was always an astonishment to his companions. And the enthusiasm with which each fresh form was greeted by him as it flew overhead became infectious to all on board. . . .

These cruises formed an important element in Newton's life during his later years. He looked forward to them with almost boyish exuberance and delighted afterwards to recount their varied incidents. They not only provided a healthful and delightful holiday, but kept him still in close personal touch with birds, which had been the main interest and study of his life. In spite of the lameness which was understood to have been the result of an accident during infancy, he was often the first to enter the boat which had been got ready for a landing on some surf-beaten rock, or for a closer inspection of the caves and stacks at the foot of a bird-haunted precipice. On such occasions, so self-dependent was he, he would gently repel offers of the assistance which was always at his service. It was only when the increasing feebleness of his limbs would have made such assistance indispensable that he reluctantly gave up the annual cruise.*

His first visit to St. Kilda was made in 1887 :—

The general sight is magnificent, but I have seen taller cliffs and cliffs more full of birds in Spitzbergen. I think the St. Kilda minister is a very good fellow, but I wish he would stop the cruelties that the lambs of his flock perpetrate on innocent young birds, which they bring away and torture for their own amusement. I was afraid it would be thought unmannerly or I should

* Sir Archibald Geikie, P.R.S. *Proceedings of the Royal Society*, B. vol. 80, 1908.

have liked to use my stick on 2 or 3 boys, besides, not knowing the laws of the country, I might have brought them down upon me.*

In 1891 they went up through the Minch to Orkney, thence to several outlying skerries and to the Flannans, west of Lewis.

I write to report our return from a charming cruise, though we saw nothing of any great importance and performed no great achievement. The 2nd day after our arrival here Evans took us over to Oronsay for the afternoon. I wish we had had the whole day there, for I should like to have searched some of those kitchen-middens, and indeed I failed to find the one which Grieve depicts. If he had only given a map instead of a useless figure it would have been better. We found one that had been cut into, but from his description it can't be that in which he got the Great Auk bones. I made some notes upon it which I can send you if you think they will be of any use to you, but I fear they are worthless. We saw the usual birds, but nothing more. Next day we started for the north, and got up to the skerries on Sunday, the cliffs looked as grand as ever, and so did the Eagles, both of which we saw sitting and for a good long time, one on each side of the nest. I believe I saw a young bird in it, but neither Evans nor my brother go so far as that—though both agree as to its being the nest. We had your book in the boat with us and went to the very spot where your photographer must have stood, but thence the sight of the eyry is *not* visible, being round the corner of the first projection. On this we all agreed. Your photographer has "distanced" the rest of the cliff more than he ought, I suppose to increase its picturesqueness. We were in the boat or on the rocks on that side for more than 2 hours, having the Eagles in view most of the

* Letter to J. A. Harvie-Brown, July 29, 1887.

time. We saw no Falcons, as we did last year, neither did Evans when he was there some ten days before, and we fear the gamekeeper, who told him some time ago he was going over from Lewis, may have done for them. Though the Eagle's nest is to all appearance inaccessible, being well overhung, anybody might kill the birds with a rifle, and I consider their existence most precarious.

The next day we were off to N. Rona. There the sea was calm, but there was a good deal of swell, and though I believe I could have got into the boat without any risk, my brother begged me not to try it. I therefore stayed on board contenting myself with looking at what J. Wolley used to consider the land of promise, and admiring the accuracy with which you have depicted it. Your view is really excellent. Evans went ashore and stayed for some time, and my brother rowed backwards and forwards along the rocks, while the yacht kept off and on. Evans reported a pair of Falcons, but nothing else more than the usual birds. The landing was easy and I am very sorry I did not go. Of course there was a great surf on the other side. Then we stood away to Suleskerry, where we made no attempt to land, but I suppose there would have been no real difficulty in getting ashore or coming off had anything been to be gained by it.

I think there must be more Gannets there than on Stack (perhaps twice as many), but, as Evans says, you might add or subtract the whole lot from those at St. Kilda without noticing the difference. After looking the rock well over with our glasses we turned southward and reached Loch Roagh in Lewis where we lay that night. Such a piping hot day it was, the sea like satin but a fair swell upon it, and a good deal of haze; sun setting like a ball of copper and the moon rising like another.

Tuesday morning we were off to the Flannan Islands which delighted all of us! There was a bit of a swell, but one could have landed almost anywhere, and we boated in and about them for a couple of hours. No

Pomatorhine Skua or Wild Geese, however, gladdened our vision, and except a Corvine bird which just showed itself and then disappeared, there was nothing beyond the ordinary sea-birds. Evans has a great fancy for going into caves, and his fancy would here have perhaps tired itself, for they seem endless, but after some four or five I suggested that the open air was certainly sweeter and the chance of being splashed by the Shags and their companions not greater. I think these islands might repay you for another visit, if you had the luck to hit off quiet water. It seems to me (from the good look we had at them in so many directions) quite clear how they came to be called the "Seven Hunters." The Eastern group consists of two pairs of sizable islands making four islands, and the Western of one pair, and the most western stack of all, which stands so distinctly from the rest both in position and outline, the latter very like Levenith in St. Kilda, of which it is a sort of miniature. We went very close round this, hoping we might find a Gannet or two on it, but could see none. There were plenty about, and Fulmars also, but I think they were not "at home" there. By the way, Evans quite believes in the Fulmar breeding on N. Rona, as he saw one or more on the land.

From the Flannans we came to Shilley Sound, intending to go next day to the Outer Hysgeir, but the sea began to tumble about and it became evident in the morning that if we went we could not land there, so we came back through the Sound of Hamir to Bracadale, starting next day for Loch Skavaig and Coruisk, and so to Oban. There we had to coal, and on Friday returned to Jura. Yesterday we went round the Loch Tarbet of this island, where we found a jolly lot of seals—all *vitulina*. By the way, we saw some fine grey seals at Oronsay, N. Rona, and the Flannans, very tame at the latter, and one huge monster let us get quite close to him before he wriggled off his rock.

To-morrow we are off for the south, and if we have done nothing towards adding to the knowledge of birds

we have (or at least I have) had a very enjoyable holiday, and I shall be able to go back to work refreshed.

I went into Scott's, the bird-stuffer at Oban, and saw there a Diver which I advised him to show to you the next time you call upon him. I don't say it is, but it looks as if it might be a young example of *Colymbus adamsi*. It is a wretchedly mounted thing, and has the tip of its bill damaged by shot. He said it was got in those parts (Sound of Mull, I think), and if so you might like to compare it with a *C. glacialis* of the same age, for I forget if it has a whitish bill or not. This specimen certainly has.

Evans says he was at Hychier off Canna about three weeks ago and found only some half a dozen Terns there, but no sheep. Those that were put on the island last and destroyed the Ternery did badly, the owner losing more than half. Serve him right!

I have been always looking out for a collision with the *Shiantelle* and am sorry it did not come off. Write to me at Cambridge.

P.S.—Off the Flannans we had a distant view of St. Kilda and Barra.*

The *Shiantelle* was Mr. Harvie-Brown's yacht, in which for many years he made cruises about the Scottish coasts and islands, collecting additional material for his volumes on the Fauna of Scotland. During this year's cruise he had planned to meet the *Aster* about the Orkney Islands, but for some reason the scheme miscarried, and he consoled himself by writing the "Song of the Shearwater," which he sent to Newton.

PUFFINUS GRAVIS.

Carmen Harveio-Brunneanum, more Kiplingiano.

By the old North Rona chapel, looking southward to the sea,
There's a Shearwater a-sittin', an' I know she thinks o' me;

* Letter to J. A. Harvie-Brown, June 28, 1891.

For the wind is in the sea-pinks, an' the Herrin' Gulls they say,
 "Get you back, you Scottish reiver; get you back to Mingulay!
 Get you back to Mingulay!

Where the old *Shiantelle* lay,
 Can't you 'ear 'er chains a-rattlin' from Oban to Mingulay?

On the road to Mingulay,
 Where the whales an' dolphins play,
 An' the dawn comes up like thunder outer Skye to stop all day!"

ir plumage was that mottled as she sot upon the green,
 She looked a perfec' beauty jus' the same as Sheba's queen,
 An' I seed 'er first a-broodin' a whackin' piece o' loot,
 A big white egg a-wastin' right underneath 'er foot,
 Bloomin' egg as white as chalk,
 't would make collectors walk

Plucky distance for to see it; if they got it, 'ow they'd talk!
 On the road to Mingulay!

(Hiatus valde defendus.)

Ship me somewhere north of Lewis, though the weather be accurst,
 Where the decalogue's not in it, and the decapod* comes first;
 For the Herrin' Gulls are callin', and it's there that I would be,
 By the old North Rona chapel, sloping southward to the sea.

On the road to Mingulay,
 Where the old *Shiantelle* lay,
 With the mushrooms 'neath the sunshine, gleaming white on Mingulay,
 On the road to Mingulay,
 Where the whales an' dolphins play,
 An' the dawn comes up like thunder outer Skye to stop all day!

In June, 1893, they made a cruise to the Outer Hebrides and to the Orkneys, where Newton visited one of the famous haunts of the Gare-fowl.

I had a delightful fortnight in Scottish waters, afloat about ten days, and the weather, except for 24 hours, everything that could be desired. Even that break had its benefit, for it made all the rest the more enjoyable, and was not so *very* bad while it lasted. I was carried through and around Orkney, close alongside of the *Holm* of Papa Westray, where Great Auks used to breed; our good H.-B. and Buckley did not appreciate that fact, and like the celebrated Levite, passed by on the other side.

* "The lobsters of the Outer Hebrides are first-rate." On this point all voyagers agree, from the venerable Dr. Johnson to the present time.—J.A.H.-B

Nevertheless, I accord to H.-B. all the honour and glory of identifying the spot where the last *bond fide* British Great Auk was slain, and the print from the photograph in the "Orkney" volume is marvellously good.

We spent a peaceful Sabbath at the Shiants, the third time I have been to that heavenly spot. But ~~to~~ see the effect of the drought even there! What ~~had~~ always been banks of glowing green (on which the Puffins looked like daisies) was this year of a hair-brown.*

His last cruise was in 1899, when the *Aster* went all round the coast of Ireland.

It was about this time that Newton suffered the greatest loss of his lifetime by the death of his brother, Sir Edward Newton, in April, 1897. Edward was three years younger than Alfred, having been born in 1832. All his life he was an ardent naturalist, and he began to contribute notes to the *Zoologist* at the age of twelve and a half.

He was almost equal to a warrener in the way he could find nests by watching the birds, or making them show him where their nests were. There are now several men who can do this, and have done it, probably better than he ever did, but I think he was the first *naturalist* who ever brought this into practice—and it was for the love of watching the birds and learning their ways, much more than with the object of taking their eggs, that he did it.†

From Cambridge, where he graduated in 1857, Edward Newton went into the Colonial Service, and was successively Assistant Colonial Secretary, Auditor-General, and Colonial Secretary of Mauritius; afterwards he was Lieutenant-Governor and Colonial

* Letter to Col. H. W. Feilden, August 14, 1893.

† Letter to H. B. Tristram, May 20, 1897.

Secretary of Jamaica. He was created C.M.G. in 1875, and K.C.M.G. in 1887. During his service in Mauritius he discovered no fewer than twenty-seven new species of birds living in Madagascar, the Comoros, and Mascarene Islands, and he took an active part in the discovery of remains of the Dodo, Solitaire, Aphanapteryx, and other extinct birds of Mauritius and Rodriguez. He retired in 1883 to a house at Lowestoft, whence he often made visits to his brother at Cambridge.

The loss is one from which I can never recover, and it is one which has at once made me feel ten years older. We had absolutely identical tastes and pursuits throughout fifty years and more, though we were often separated for years.*

To say that he felt ten years older was no idle phrase. His friends remarked a definite change in the Professor, and thenceforward, though his age was only sixty-eight, he seemed to have become suddenly, as some men do, an old man. He was still, for several years to come, a familiar figure in the streets of Cambridge; if the four-wheeled cab took him to the Museums in the afternoon, he walked back to Magdalene whenever it was fine. And that was a progress that one will never forget; the tall old man—bent as he was, he certainly stood six feet—dressed in an old-fashioned black tail-coat, light grey trousers, and black stove-pipe hat, or in summer a high-crowned felt hat of pale grey. White hair and whiskers and keen bright eyes that seemed to be fixed on the horizon; but he was quick to see a greeting from a passer-by, and he was amazingly dexterous in transferring a stick to the other hand in order to salute a lady. He had a strong dislike of the Cambridge tramcars, and objected to

* Letter to G. E. H. Barrett-Hamilton, June, 1897.

their being taken along the King's Parade. Often on his way from the Museums he would walk down the middle of the street from Benet Street to Market Hill deaf to the tinkling bell behind him ; speed mattered little to the old horse-drawn trams of Cambridge, and he hardly lived to see the day of motor 'busses.

Two attempts were made to paint his portrait. The first was by the distinguished artist Charles Furse, who both in his origins and in his tastes had much in common with Newton, but for some reason they failed to get on together, and the picture was never finished.

For the last five days I have been surrendering my body wholly to my Apelles, and I fear that his job is not much more than half done. Some people think that the result will be satisfactory ; but for my own part I as yet fail to recognise in the performance any trace of the expression of chastened resignation which I know I wear while the process is going on, and I sit staring at a blessed gas bracket, which is the object chosen for me to fix my eyes upon. However, I occasionally cast furtive glances at some papers that lie before me, and thus the whole of the 20 hours the operation has so far taken has not been wholly wasted, for I have to some extent revised the MS. "Birds of Sussex," which good old Borrer submitted to me.*

He complains later (June 14) that the "thorny Furse has made my hand look like an overgrown baby's—fat and fussy, which may be artistic, but I know to be untrue."

The second portrait was painted by Mr. Lowes Dickinson, and was considered good enough to be hung in the Combination Room at Magdalene.

Honours came to him late in life : he had been elected F.R.S. in 1870. In 1900 he was awarded one

* Letter to Lord Lilford, May 31, 1890.

of the Royal Medals of the Royal Society and the Gold Medal of the Linnean Society. He also held the distinction of being a Vice-President of the Royal and Zoological Societies. An old friend of his, and a friend also of Darwin and of Wallace, wrote to him :—

December 21, 1905.

DEAR PROFESSOR,

I cannot refrain from sending you a line this Christmas. I am now in my ninetieth year and may never have another opportunity. Though I have not had the pleasure of seeing you lately, I am always hearing you spoken of and invariably with esteem and regard. Every one honours Newton, and none more sincerely than,

Yours most truly,
W. B. TEGETMEIER.

About the same time, November, 1905, he had a bad fall in coming out of Hall ; it shook him seriously and he was never the same again. But he did not give up his work ; he was then finishing off the "*Ootheca Wolleyana*," and he began already to make plans for the future.

It will indeed be a great pleasure to me to get this ["*Ootheca Wolleyana*"] done, and if I only keep my life and faculties I ought to be able to do it. Then there is the *Garc-fowl* business to which I am pledged if possible, and though that will mean a great deal of work I am not without hope of managing. Beyond that I dare not look ; but there are over 50 years' notes on the "*Bustard in Britain*" to solace my second childhood, if that should come about. At any rate I am not wanting in occupation if I live another ten years.*

The last word of the "*Ootheca*" was written on November 20, 1906, and the final part was published

* Letter to G. E. H. Barrett-Hamilton, September 27, 1905.

in the Spring of the following year. The Professor continued to keep up his frequent correspondence with a number of friends; his memory was unimpaired and his interest in other people's doings was as keen as ever it was, but he was not fit for further work. In May, 1907, he was beset by a serious attack of dropsy, his first real illness in seventy-eight years, and he tried to look upon it in his customary philosophical way.

I am sorry to say I have been laid up now for some weeks with a most obstinate dropsical attack, which defies the strongest drugs the doctors have been dosing me with. I am almost thinking of sending to Holland for a Dutch engineer to come and drain me, after which he can turn his hand to our Fens, where I hear there are just now hundreds of acres under water—whether due to the bursting of a bank I do not know.*

A few days later, when he knew that his illness would be his last, he wrote to Mr. Harvie-Brown:—

M.C.C.,
May 29, 1907.

MY DEAR H.-B.,

For the first time in my life I find myself writing to you as a serious invalid, for though my doctor professes to be hopeful of the result, I can't say that I feel so at all, but that a stubborn attack of dropsy which took me some weeks ago means to carry me off. I am thankful to say that so far it is not attended by any pain—though from weakness there is considerable amount of inconvenience, which must be expected—but I have much—very much—to be thankful for, and indeed have received blessings innumerable. I wish I could have lived to tell "The Story of the Gare-fowl" and "The Bustard and Britain," for which I have laid in a vast stock of material, but perhaps

* Letter to W. Eagle-Clarke, May 21, 1907.

some one else may be found to use it efficiently. I think a nice book could be made out of each batch.

As to myself I trust I am sufficiently thankful, for I have had a life to be thankful for. I have known some of the best of men whom I could know, and what is more have been on the best terms of friendship with them, and it has certainly pleased God to bless me in countless ways and particularly in my Natural History acquaintances, both at home and abroad. By a most wonderful combination of circumstances I came in for the Travelling Fellowship of this College—the only thing of its kind, and the very thing that suited me! Then again, by a like wonderful chance, the newly founded Professorship of Zoology in the University fell to me! If it had been worth more some better man would have tried for it and got it. But it was just what I wanted, and though many others would have done much more with it, I am not sure that the study of Zoology in the University would have been thereby really helped.

So God bless you,

ALFRED NEWTON.

A few days before the end an old friend, Mr. J. J. Lister, went to see him when he was in great distress. "I have had a very happy life," he said.

The evening before he died the Master was sent for. A prayer was said and then the Professor wished him good-bye. "God bless all my friends—God bless the College—and may the study of Zoology continue to flourish in the University." A little later—his breathing was very laboured and he could speak only with difficulty—he asked to be lifted up. "I must die in my chair, like dear Bradshaw." So, on June 7, 1907, he died.

CHAPTER XVII

MISCELLANEOUS LETTERS

THE following letters written to and by Newton, dealing with various subjects, which do not find a place in the foregoing chapters, are arranged in order of date.

From John Wolley to A.N. :—

Muonioniska,

November 15, 1853.

Ludwig Knoblock tells me the following as a Finnish story. Kiowroo (one of the names of the devil, for he has very many in Finland) had taken a lad as *drang* for one year, a lad of seventeen years of age and very clever. Kiowroo was somewhat jealous of him, and would constantly have wagers with him which could do things best.

One day they agreed to see which could bear the heavy trunk of a tree furthest without setting his end to the ground. They agreed that whoever had the small end must go first, and if he looked back the other might poke him in the eye besides winning the wager. The boy said he was quite ready to take the large end, so off they started. But they had not gone far before the lad slipped his share upon the ground and sat upon it; Kiowroo suspected something but he durst not look back for the lad called out that he had a sharp spike ready for his eye in case he turned his head. At last he could go no further and began to say it was wonderfully heavy, but the lad declared he did not feel it at all. Presently he could not stand it any longer, but let his end drop: and before he dare look round the lad was on his legs with the tree upon his shoulder. So the devil lost that wager.

Another day they were to try which could drive his

head hardest against a tree. The boy slipped away and cut a hole in a tree just so deep as half his head, and covered the place with bark. When the trial came off the boy tried first, and his head was buried down to the eyes in the wood. The devil came after and smashed off a great piece of bark with the wood under it; but his head went nothing like so deep as the lad's, so he lost that wager too.

Next they had a dispute which could throw highest an enormous hammer. The devil cast it to the roof of a high room, but the *drang* waited a little; and the devil said, "Go on." The lad replied: "I am only stopping till that black cloud comes overhead, that I may throw it upon it." The devil said: "Nay, nay, my father's old hammer, I will pay you the money rather."

Down, Bromley, Kent, S.E.,

January 19, 1867.

MY DEAR SIR,

Will you have the kindness to give me some information on one point? Not long since I was speaking to Mr. Wallace about his mimetic butterflies, and I told him of the case of the *Rhynchæa*, of which the female is more beautiful than the male, with the young resembling the latter. He answered me that you at Nottingham had advanced this or some such case, and that you had simply explained it by the male being the incubator. I should be extremely obliged if you would give me any information on this head and allow me to quote you. The subject interests me greatly, as in the 4th Edition of the "Origin" I gave the obvious explanation of female birds not being gaudily coloured, etc., on account of their incubating; I knew then of the *Rhynchæa* but passed over the case, from not having space and from its appearing to me quite inexplicable.

I hope that you will forgive me troubling you, and believe me, my dear Sir,

Yours sincerely,

CHARLES DARWIN.

P.S.—As I am writing, I will ask one other question, for the chance of your being able to answer it. Does the male black Australian swan, or the black and white S. American swan, differ from the females in plumage? *i.e.* in the intensity of the black, or in the amount of black in the black-necked species?

Down, Bromley, Kent, S.E.,
March 4, 1867.

MY DEAR SIR,

Very many thanks about the Dotterel, and I am pleased to hear of this additional evidence. I have looked to Swinhoe's papers, but the case does not seem very conclusive. After writing to you I remembered that the female of the Carrion-hawk of the Falkland I's. (formerly called *Polyborus N. Zealandii*) is very much brighter coloured than the male, as I ascertained ("Zool. Voyage of *Beagle*: Birds") by dissection; I have written to the Missionaries there about its nidification and if I receive any answer, will inform you.

The other day I thought I had got a case at the Zoological Gardens in the *Casuarinus galeatus*, in which the female has the finest and brightest caruncles, etc., but Selater tells me it would be rash to trust to the comparison of a single pair, and he tells me that the male Ostrich has the finest plumes.

With my best thanks,

I remain my dear Sir,

Yours very sincerely,

CHARLES DARWIN.

P.S.—Mr. Blyth tells me that according to Jordan the natives say the male *Turnix* alone incubates and attends to young.

There is another consideration which might lead to the female being the most beautiful, *viz.*, if they were the more numerous than the males and the species were not polygamous, for in this case the more beautiful females would be selected.

Eversley Rectory, Winchfield,
April, 1867.

MY DEAR NEWTON,

Terrible hard work—and a sad death in our family, have prevented my thanking you and John Clark for your kind correction of my lecture.

I am very glad to know what the Bearded Tit feeds on and that it is not a Shrike. But most thankful am I for your guess at *ficedulæ*. It is proof of high critical power—you should take to editing Greek plays.

I knew *ficedulæ* was “beccaficos.” But thought the French used it for Wheatears and other little birds. But *picedulæ* is a delightful correction. But “hawks” for “auetes” was the printer’s error.

I am well pleased that you found so little fault with the whole. I omitted the antiquity of man, and flint implements: because it was unfair to commit good Norman McLeod, who is a martyr already to his liberal opinions, responsible for the discussing so great a subject in a single paragraph.

Thank God, the birds are coming—which always make my heart grow young again. Chiffchaff, wryneck, wheatear, and garden warbler are here, and I am straining my ears everywhere for that jolly little feathered Bacchus, the black cap. I will see Stevenson’s “Birds of Norfolk.” I was very sorry to hear of your illness; but I was told it was gout.

Ever yours obliged,

C. KINGSLEY.

London,
January 18, 1870.

DEAR NEWTON,

Can you inform me if there is any canal you know of in your part of the country with a straight piece (without locks) five or six miles long, or any piece of water of that extent? I have undertaken (for a heavy wager) to prove by measurement the rotundity of the earth, to one of those strange phenomena who

do not believe in it and who is willing to pay to be enlightened.

Will you also give me your advice on another point? I am about to publish all my papers which bear upon Natural Selection, etc., in a volume. I should like an attractive title, but will not have a misleading one. I have at present fixed upon "Contributions to the Theory of Natural Selection. A Series of Essays," as exactly expressing what the book will be. Macmillan has a dislike to the word *Contributions*, and wants me to call it "Essays on Natural Selection," or "On Natural Selection; a Series of Essays." But these indicate too much a complete work on a definite subject to please me.

Do you think my title will do, or can you suggest anything quite different?

Yours very faithfully,
ALFRED R. WALLACE.

A.N. to Edward Newton:—

Cambridge,
April 14, 1870.

He told me the day I got there that the digging which Greenwell (he is a Canon of Durham and the greatest resurrectionist in England) has been carrying on for some years at Grime's Graves on Weeting, behind Broomhill, had at last produced something, and I made Newcome drive me over next day. Last year I went there but there was nothing to be seen but a great number of depressions (about 200 they say) like ordinary disused stone pits.

All the old antiquaries have always said that these were the remains of an ancient British village or town; but Greenwell found the country all round, and particularly on the Brandon side, so covered with *old* worked flints that he was sure that the depressions were the remains of pits made in the old time to get flint. It now appears that he was right, and I don't know

when I have been more interested than with the results. At the beginning of last week, after he had been digging out the rubbish from one of these pits (he began 3 years ago, but of course only worked occasionally) and had got down by the side of the solid chalk about 39 feet, he found a horizontal opening; clearing this he found it was the entrance to a gallery, or rather series of galleries, and these he has since been clearing out; for the makers of these galleries, after they had got what they wanted, seemed to have filled in some of them with the chalk they excavated from the others—of course, to save the trouble of hoisting it to the top. These galleries run in almost every direction, with only enough between them to keep the roof from falling in, and it is quite clear that the object with which they were cut was to get at the “floor flint,” a stratum of the finest and hardest flint some 9 to 12 inches thick which lies at that depth and is entirely removed from the galleries. One of these is either 27 or 29 feet long, and appears to have communicated with a similar shaft now nearly filled up and forming the next depression, and there seems a probability that the whole formed an immense series of “pot-holes” (like those they used to take rabbits in on the warrens). The gallery at the entrance is nearly high enough to stand in, say 5 feet, but it soon diminishes and the branches are not above 3 feet high, some of them less, so that the miners must have lain on their side just as pit-men do now in the collieries. But the best thing has to come; these galleries were all excavated with picks made of Stags’ horns! more than a dozen of which have been found in this one pit, among the rubbish or quite at the end of the galleries. Whether this pit ever caved in and the workers had to leave their tools one can’t say, but probably it was so. The next that is opened will probably show; for one cannot think that the picks were of no value, some indeed are quite worn, but the others are quite fresh. The horns are longer than the *average fen horn*, but not so big as those of the *drift*.

A few splinters of flint are found, but very few, showing how careful the men were about every morsel of it they broke off, and one rough flint axe or "celt."

The big and royal antlers are broken off the horns and then you have a capital pick. Nearly all the horns are naturally shed, there were, I think, only 3 taken off dead deer, and this is curious, for however abundant deer may have been, it is notorious that the finding of shed horns is a rarity. I got a very good pick which was found and brought "to bank" while I was there; it has been much used, the point blunted and hammer end worn by use.

Of other "works of art" I saw several shallow cups cut out of chalk, which it is suggested may have been used as lamps. I went down the ladder and into one gallery; the pick marks on the walls and roof are as plain and fresh-looking as possible and Greenwell declares some of the picks have thumb or finger marks (showing the grain of the skin) in the fine chalk with which they are now encrusted. There is no doubt about the existence of these marks, but I found I could make them for myself and I doubt their being impressions of the skin of their ancient proprietors.

Altogether the discovery is very wonderful, and I hope other people will go to work and open some more pits. You may fairly give them an age of 2000 years, for it is clear that metal was unknown at the time.

Greenwell is convinced that if more pits are opened they will find the skeleton of some ancient miner who was overwhelmed by a fall; it is very likely, and I hope the search will be continued, but Angerstein as you know is a queer customer and it is impossible to say what crotchet he may have.

A.N. to J. A. Harvie-Brown :—

Bloxworth, Blandford,
August 29, 1876.

I am very glad to have your confirmation of my opinion as to there being dialects in the song of birds.

I believe that the notion first occurred to me the first day I ever landed in Norway. This was at Christiansand in May, 1855, and I was immediately struck with the songs of the Redstarts and Wheatears sounding differently from those I had been hearing only a few days before at home. I thought, however, that some of the difference might be due to rocky localities in which I heard the Norwegian birds, and I am now not sure that in some cases this may not have something to do with the difference in tone, especially if the sound does not strike one's ear directly but is reflected from stones or rocks.

Still I am quite inclined to believe that part of the difference at least is actually local and I see no reason why the notes should not vary. The case of your particularly full-voiced Redwing might be an *individual peculiarity*, for every one must have observed what a difference there is between the song of one Song-Thrush and another. I should say that I never heard two sing exactly alike, and it is easy to recognise the same bird day after day, not to say season after season. Of all our birds this difference is perhaps most easily noticed in the Song-Thrush on account of its loud notes and the abundance and familiarity of the species ; but I have noticed it nearly as conspicuously in the Nightingale and also decidedly with Skylark and Blackbird, I believe also in the Chaffinch, Willow-Wren and some others. If then there be, as there certainly is, this individual difference, it is not unnatural to suppose that it may be (like other individual differences) hereditary, and as there must in the majority of cases be greater consanguinity between (say) the Redstarts and Wheatears of Christiansand than between the same birds in Suffolk the matter seems capable of easy explanation. An extension of the principle will to some degree suggest a reasonable theory of the "confusion of tongues" without a Tower of Babel !

A.N. to J. A. Harvie-Brown :—

10, Beaufort Gardens, S.W.
January 10, 1877.

It is quite a new notion to me that the Capercally drives out the Blackgame. Without intimating any doubt—because indeed I am not in a position to doubt or to believe—I will, however, ask you to be fully satisfied that this is the case. I know how fond gamekeepers and others are of imagining that such or such a thing has caused a diminution of game. Thus it has grown to be a prevalent belief in Norfolk and Suffolk that French Partridges drive away the grey birds. I in former years had ample opportunity of seeing both species and made pretty good use of it, and I am convinced that the belief has not a particle of foundation. Again I know from experience in Dorsetshire that in some seasons Blackgame are unaccountably scarce and in others unaccountably plentiful, and there there are no Capercallies at all.

I am just returned from Brighton where I saw Mr. Booth's collection. He seems to have murdered several Eagles last spring at their nests !

Bloxworth, September 20, 1877.

DEAR LILFORD,

Concerning Owls : both last year and this I have been exercised in regard to an Owl that comes and hoots in trees near this house. On more than one occasion last year my brother Edward and myself saw a Barn Owl fly from a tree whence such hooting had been heard but a few minutes before, and no Brown Owl could be found in or flushed from the said tree. Is it possible that after all the Barn Owl may hoot after a fashion ; for I ought to say that this note is not the regular "Tu-whit, 'Tu-whoo," but a wavering "whooyoo-o-yoo-yoo," preceded and followed by horrid and unholy shrieks ?

I won't have that Durham Canon arrogate "Tit-mousen" to himself. He only heard it from me (*vide*

Yarrell, "Br. B.," ed. 4, i. p. 490, note). These same birds are scarce with us this autumn. In the garden here there are no honeysuckle berries, and not a *Parus palustris* have I in consequence seen at a bower just opposite my window.

Now that you remind me of it, I think that I too have heard Titmouzen cry in alarm when a Woodcock has been on the wing. It must be an Owl they take it for, and I know the Long-eared Owl preys at times on small birds, so there is some ground for their terror.

I believe I told you of my seeing 11 Blackgame (9 in one field) one day about a week ago. I have seen nothing of any importance since. I expect to be making my start about this day fortnight.

Do you like eels? I don't, but not exactly on the ground assigned by a Yankee: "Do you think, sir, I'd eat a darned damp snake?"

Yours very truly,

ALFRED NEWTON.

P.S.—I ought to have said that the venison turned out an unmixed comfort.

A.N. to Rev. A. C. Smith :—

October 31, 1878.

I fully expected that some of my friends would be startled at the way I dealt with the Crows; but I am sorry to hear that you are distressed at it. I can only say I was forced to it by the evidence, which I tried to consider as fairly as possible. If I had any bias it was to have things as they always have been, but the evidence was too strong for me. Be sure, however, that I shall not quarrel with those who don't see it as I do, and, if I am not mistaken, to the "British Bird" public the Black and Grey Crows will long stand as distinct "species."

I thought I had said enough about Rook shooting. As a "sport" it has no charms for me, but rather

inspires disgust. Still I am not sure that as regards the welfare of the species the practice is detrimental. It reduces the number of mouths to be fed and the survivors must consequently thrive in proportion. If there was no Rook-shooting we should doubtless have a large emigration of young Rooks in autumn, and a very small number of the emigrants would return in the spring. As it is the emigration is hardly perceptible, perhaps being no greater than the immigration in spring.

The varied fortune of rookeries is indeed very curious, and their waxing and waning would be a wonderfully interesting subject to investigate; of course, in almost every case the supply of food is the turning-point. We have, as I dare say you know, an abundance of Rooks here, not, I am sorry to say, in the garden of this College; but from St. John's to Downing is an almost continuous rookery so far as the presence of trees admit. When I first knew Cambridge I think there were two distinct establishments; that in the Johnian "wilderness," and that in the trees fronting Cat's Hall. The former has spread in extent, though I am not sure there are more birds, partly owing to many trees having been blown down, and the latter certainly has more nests than it used. There are nests at intervals all along the backs of the Colleges as far as Queen's; so that really, as I have said, there is scarcely any breach of continuity. Downing, too, is but a skip and a flutter from Cat's, and since the Downing trees have grown up, Rooks have taken to them immensely. There is also a nest or two in the garden of Caius though quite surrounded by buildings, and some at Sidney. I wish we had some in our grounds, but I suspect our trees are not to their liking.

July 24, 1879.

MY DEAR LILFORD,

I had nearly omitted to notice your kind offer of Flamingoes' eggs, for which I thank you much;

but unless they are from some new locality or possess some other remarkable qualification, I will not trespass on your bounty. I have specimens from Spain, France, and India, and there is a "damnable iteration" about them all. Why does not some one bring home a Flamingo's nest? the whole pillar of mud in which the hen "s'assoit, comme Monsieur sur une vase"—as the Frenchman told J. W. Clark. There is a deal of interesting matter to be got out of this bird. How does it collect the mud, and how heap it up? To this day the best authority on the subject is old Dampier, who wrote more than 200 years ago. If the gentlemen of England who go abroad at ease would look after a few things like this they would cap their exploits, which of course already surpass those of the ornithologists of any other nation.

Your hybrid Owl must be a really funny fellow. Do pray have his portrait taken, and *at least twice*; once before he loses his first plumage, and then when he gets his next suit. *All* young Owls, so far as I know, have dark irides; when he gets older he will probably have them a half-and-half colour, something between Bass and Guinness.

I went to Baker's to-day and saw the son (whom by the way, I believe to be a good honest lad). I told him his father was very foolish not to send you your bird at once. He has had an Eagle of my brother's some 8 or 9 years. It is always coming home next week!

Yours very truly,
ALFRED NEWTON.

S.S. *Glouworm*, R.Y.S., Dartmouth,
August 8, 1883.

MY DEAR NEWTON,

Your information about Great Auk's egg is correct, I saw it at Burton's; a very fair good specimen with a largeish fracture or irregular orifice at the small end, which had been tolerably patched up; it had the

word "Pingouin," or part thereof, written on it in two places. I had a letter from Franck on 19th ult. saying that the lowest price was £150, and that it was the finest specimen in the world. I declined to buy, and know no more about it except that Burton told me that Franck had bought it for the Continent, and that I told several people about it.

My doings since I last saw you are shortly told. I went with my wife and youngest boy to Biarritz at the end of January, stayed there much bored for about three weeks and went on to Seville *via* Madrid about the end of February. I had this vessel in the river, but lived at pothouse, made several expeditions down the river, but was much hampered during March and early April by bad weather. We shot about 20 Great Bustards, and nothing else worthy of remark except a pair of *Sterna Caspica*, rare birds in those parts, never met with before by self or Irby. Flamingoes were more numerous than I ever saw them before, but at their nesting time I was crippled by gout in the right hand, not very severe but sufficiently so to prevent any pleasure in locomotion, and I could not inspire my boy to wade some two or three miles of mud and water to the Lucio seal, which is no doubt the spot where Abel Chapman tells in last *Ibis* of having seen them on their nests. I joined my wife at Granada towards the end of May, and came home thence by Cordova, Madrid and Paris. Went to Neuevahn with Irby at beginning of June, he caught several swallow-tailed Flutter-bugs, *P. podalirius*, with his boy from Darmstadt, and remained in apparently comparative contentment for ten days. My wife joined me, we found nest of *Cyanecula wolji*. I bathed, drank, and came to London at the beginning of July, was detained there by bad weather for several days. Did my Fisheries Ex^{tn} several times as well as a bath-chairist could. Met your brother there, the "worthy Magistrate," who told of your worthy self; and came down here about three weeks ago. Weather and fishing

very indifferent, hardly any Kittiwakes *now* on the coast, a good many when we first arrived, but no propagation in these parts of that species. We shall be going to Lilford about the middle of next week. Shall I send you some venison? And if so, whither? Irby has hired a shoot of some 4000 acres near Wimborne, where he has a good breed of partridges, and expects to slay snipes. There are a few Blackgame.

Let me hear how you are. I hope the rheumatism has left you in peace of late.

Did you hear tell of a mourning friend at poor Jack Russell's funeral, who hearing a bystander remark that the flowers, wreaths, etc., in the grave were very beautiful, said, "Yez, it is very luvly, sheur enuf, but I rackon the dear old feller eud zeuner lie in a vuz brake." My wife sends her very kind remembrances.

Yours very truly,
LILFORD.

S.S. Glowworm, R.Y.S., Dartmouth,
August 12, 1883.

MY DEAR NEWTON,

Thank you very much for yours of 10th to hand yesterday. I should like to hear what becomes of the egg of Great Auk. I would have given £100 for it, but did not particularly care to make an offer. I told Seebohn about it, but he did not seem to rise.

About the killing of *Otis tarda* in Spain, I wanted some choice specimens and as I found that there is now a demand for them in Seville for culinary purposes, besides a little French widow who buys all she can get at 2\$. for preserving and sending to Paris, thinks I that we may as well have our share. With 3 exceptions all that we shot were old males. There is no fear of the extinction of the species in Spain, as the Marisma of the Guadalquivir seems to be the only district in which they are bullied by man to any extent, and with the exception of a wandering Bonelli's Eagle they have

there no other enemies. We saw a very great number, and they are very wide awake in the day time but though no amount of driving and fair shooting will materially affect the species, the demand aforesaid in Seville has evoked a murderous practice of shooting them with lantern and bell at nights, which is most destructive to the male birds, but they are if not polygamous "muy putañeros," as a young Spaniard said to me, and every healthy old male treads every female that he can get at.

If you could spare the necessary time, there would be little difficulty in seeing *Phaenicopterus* at his home either in Spain or in Sardinia.

You are right in supposing that I blundered about *Cyanecula*; those we found at Neuvahn were the white-spotted race, which is apparently entirely unknown to the natives of those parts.

We go to Lilford this week, when you shall promptly have some venison. I do not know exactly whereabouts Irby's shoot is, but I believe that Wimborne is his post town. I have just heard of a nest of Hobby near Lilford, but not on my own territory.

Yours very truly,

LILFORD.

•
December 20, 1890.

MY DEAR LILFORD,

It is the very *Viscus* berry itself that *T. viscivorus* visits the tree opposite my window to devour, the tree being an old apple with a fine growth of Mistletoe upon it. In all the more than 26 years that I have been here I have never seen any other bird touch a Mistletoe berry save a Robin on one single occasion; but *T. viscivorus* clears them all off when they are really ripe. This very morning there sat a wretched Song-Thrush, with plenty of Mistletoe berries over his head and around him, but he did not even look at them, and so it always is. Yet the taste of this very bird is adaptive enough to let him be greedy over pie-crust.

We have now got a pretty deep snow, which I find very uncomfortable, though the resources of civilisation in the shape of "lawn-tennis soles" to my boots enable me to get about more freely than before their invention.

News I have none and I am almost compelled to comment upon Mr. Parnell's doings, low as that form of eking out a letter would be, but even there everything that can be said on the subject has been said, and novelty is impossible. Guillemard has sent me a copy of his "Ferdinand Magellan" and I am charmed with so much of it as I have read. The story is of itself most interesting and it is capitally treated by him. I feel quite glad that he had some of my books to work with—especially as at last I have got them safe again. Do you know anything of our Canon? I wrote to him some weeks ago asking if he really meant to go to the Sandwich Islands, but have had no reply. It will be a pity if he has contracted the modern habit of not answering letters.

I yesterday had from a friend a bone which he had found under a Golden Eagle's nest, and on taking it to the Museum I discovered to my surprise that it was a Shag's, and a young one at that—so the inference must be that Golden Eagles rob Shags' nests, a rather curious thing.

Wishing you, Lady Lilford and all yours the best of wishes, believe me to be,

Yours very truly,
ALFRED NEWTON.

P.S.—Kiwis are too nocturnal, or at least crepuscular, to be entertaining—though years ago Wolley, my brother Edward and I were much interested by watching the first *Apteryx* that came alive to England for an hour or two by the aid of a bull's-eye lantern. And we stood the poor creature a drink, the first it had had since its arrival and, so far as I could learn, the only one it enjoyed during its long captivity. It was nice

to hear it blowing bubbles through its nostrils, just putting the tip of its bill in water.

A.N. to Canon H. B. Tristram :—

10, Beaufort Gardens,

December 29, 1890.

I had begun to be unhappy about you. There seemed a possibility in these days of (asserted) noiseless explosions that the Great Gun of Durham had gone off silently, with intentions murderous to the peace of Hawaiian birds, and that the Sandwich Island Committee might be startled to find that both bread and meat were taken out of its mouth, and a flavour of Durham mustard left only.

I thank you for your good wishes, and return them to you and all yours; but put not your trust in grandchildren being ornithologists or any of the rising generation. The more promising they are as boys the less likely are they to turn out worth anything. Think of Lilford's youngest boy who was unhappy because he was shaky on his "Grebes," and has now descended to incredible baseness, even acting in a Greek play where he had to call a Swan "redfooted"! N.B., it could not have been *C. coscoruba* and was hardly likely to be *C. davidi*.

Your voyage will not be so entertaining as Magellan's (by the way, get Guillemard's new book* and take it with you to read), but I hope less disastrous, very delightful for a good sailor, but for sight seeing *nil nisi pontus et aer*, as the old Latin grammar put it, until you get to Japan, and then I expect you will be much pressed for time. Convey my love to Mitsukuri at Tokio, and another man there, a very nice fellow and a botanist whose name at this moment I forget. He came to Cambridge speaking American quite intelligibly, but after he had been with us a little while he spoke English so fluently that he ran all his words into one word and couldn't by any means be understood, perhaps he has

* "Ferdinand Magellan."

now slowed down a bit, in which case you will find him very agreeable.

It really is a pity you can't come home by the Sandwich Is. and stop the space of a steamer there; even Oahu, the island on which Honolulu stands, has not been worked, and I might tell you of a place there where I think you would find a species of which only one other specimen is known to exist, and that got more than fifty years ago.

Magdalene College,
Cambridge,
October 14, 1895.

MY DEAR HARTING,

I am extremely obliged to you for sending the Swan book,* and I will return it in a few days. I have also to thank you for your letter received this morning and the accompanying copy of your article on "cob and pen," which I am very glad to have. You show abundant authority for the use of the words "cob" and "pen," and I only wish I had known of it sooner. But I cannot agree with you as to the meaning and application of either. It is possible that "cob" may refer to the "berry" on the cock Swan's bill, since the word was used to signify any round substance, and in that sense its diminutive (?) still survives in "cobble," a round stone such as roads are paved with.

But there was another signification (= testiculus), and as I find that a "cob horse" meant a "stone horse," I was inclined to think that a "cob swan" was a male possessing the natural power of procreation. I would refer you to the "New English Dictionary" (*sub voce*), into which I much wish I had looked before my article "Cob" was published.

All you say as to "Cop" is right enough, and as a provincial word it has been known to me, in the sense

* "The Orders, Lawes, and Ancient Customes of Swanns. Caused to be printed by John Witherings, Esquire, Master and Governour of the Royall game of Swans and Signets throughout England. Printed by August Mathewes, 1632." Sm. 4to, with Vignette of Swan on title page. An exceedingly rare little volume.

of head, or crown, or crest, from my boyhood; but though *h* and *p* are in many cases interchangeable, and most likely "cob" and "cop" have a common origin, yet I cannot think that "cob" would ever return to the form "cop."

I do not think your explanations of "pen" will hold, and we shall have to look further to account for it. Likely enough it is connected with *penma*, but its special meaning as a hen swan seems still obscure. I shall send the copy of your article to Skeat, and if he can throw any light on the subject I will let you know. Notwithstanding what you have written, and my own suggestion now made as to "cob," I still think Yarrell's second statement is unintelligible, though his first, on your showing, is satisfactorily authorised. [See *Dict. Birds*, art. "Cob".]

Yours very truly,
ALFRED NEWTON.

September 5, 1899.

MY DEAR HARVIE-BROWN,

I am afraid you will find it very hard to get any specimens of Flint Jack's handiwork. You may be sure that most of his victims threw them away as soon as the fraud was exposed. Except John Evans * who, I believe, has some, I cannot think of anybody of my acquaintance likely to have any—and he would not be likely to part with them. I have certainly seen some of Jack's forgeries in Museums—the Blackmore Museum at Salisbury among others—but there they are kept for a purpose, and would not be given up. I am not sure that we may not have a few of the counterfeits in our Antiquarian Museum at Cambridge. I remember some one exhibiting some at a meeting of the Ray Club about the time the matter was exposed, and I think John Evans had a good deal to do with it. The story is that he, or some one else, beginning to suspect Flint Jack, drew on paper the form of a purely imaginary

* His are now in the Pitt Rivers Museum at Oxford.

implement, saying that such a specimen would be worth a good bit of money. Jack is said to have looked at the sketch and declared he had once come across a thing like it which he had sold to a gentleman, etc. The next time he came round he produced a flint corresponding accurately with the drawing and claimed his reward. The money was paid to him and he was told how he had been entrapped; but he saw the joke of the thing and enjoyed it very much!

The trade of "flint-knapping" has been carried on at Brandon time out of mind. The "floor-flint," as it is thereabout called, produces the hardest and finest quality, and I believe it is known that even before gun-flints came into use, flints for common strike-a-light purposes were manufactured there to a great extent. In more recent times almost the whole supply of gun-flints has come from that place, and a very curious thing is that there is still a demand (only very limited in these days) for them, but goodness knows whence it comes and whither they go. . . . In that neighbourhood it is not worth while to make forgeries; you can't do it properly with an iron hammer (as the gun-flints are made) and the dull new surface is always recognisable. It takes centuries to put on the proper *patina*, and if polishing is attempted it is almost always overdone. The best imitation is produced by rubbing the fracture with a bit of cheese, but naturally that can be as quickly removed by the finger, and then you have the dull surface again. Besides this, in the majority of cases the colour of the fracture is affected by age—sometimes remarkably so.

Yours very truly,
ALFRED NEWTON.

A.N. to J. A. Harvie-Brown :—

Lowestoft,
November 17, 1900.

There must be plenty of analogies between the migrations of Fishes and of Birds, yet I should suppose

that there were also plenty of differences. I have always felt that a *good* book on the migration of Fishes, both salt-water and fresh, was much wanted.

A year or two ago a man wrote to me enquiring as you now do about the vent feathers (under tail coverts if you like it better) of the Blackcock. I could only tell him that I knew nothing beyond the fact that they are sometimes marked with black and sometimes not. Never having lived in a Blackcock country my opportunities of observation have been *nil*, and I could not find out that anybody, here or on the continent, had explained or attempted to account for the variation; but I remember noticing the fact when a boy, in some Blackgame sent to my father from Perthshire.

By way of starting a theory, to be kicked over if need be, I should surmise that the young birds have the bigger marks, the "T" or anchor shape, which gradually lessens to the arrow-head, that to an "ermine" spot and finally disappears. This is just the reverse of the "return marking" on the Waxwing's pinions, for they, I am pretty sure, are only seen in old birds, and they seem to increase with age.

It would be a very pretty *hare* for you to start in the "Scottish Annals": this of Blackcocks' bottoms!

A.N. to G. E. H. Barrett-Hamilton:—

February 10, 1905.

Now I want you to tell me whether you have ever heard, or heard *of*, a Hare's whistle, if I may so call it. Do you know any one who has described it, and if so who? I believe I have heard it, but very rarely and so long ago that my recollection of it is indistinct. I think it is only uttered at night, and I suppose in the rutting season; but that I don't know.

The first time I heard it I had not a notion of what it was, nor did I know for some time what animal it came from, and then, so far as I remember, an old warrener told me. I think the ordinary gamekeeper

knows nothing about it; but then the ordinary game-keeper is one of the most stupidly unobservant of beings. Poachers, however, do know it and imitate it with a "hare-call," one of which I should much like to get hold of. None of the books in common use mentions it so far as I am aware, but there is nothing very extraordinary in that; for so very few people who have written books know anything about the habits of mammals beyond the most obvious facts, and according to my recollection this cry, call, or whistle is so shrill that it is possible some people could not hear it at all. You know that many can't hear a Shrew, and, it is said, scarcely any one over forty, a Bat.

A.N. to P. H. Bahr:—

July 5, 1906.

I know what a nuisance letter-writing is when "in the field," and all the spare time one has is or ought to be devoted to writing up notes, but I do like hearing of people's existence especially when they are gone on a venture which oneself has chiefly instigated.

You are perfectly right in your opinion of game-keepers; taking them as a lot they are as big a set of fools as one ordinarily finds, but (and it is an important "but") there are some brilliant exceptions. I have had nothing to do with crofters, but from all I have heard I have a poor opinion of them. They may be picturesque, but in every other but a sentimental view I am sure the landscape would be better without them; from the economic point of view that is without doubt.

By the way, that white or whitish patch at the base of the bill is not peculiar to the Scaup Duck, the Tufted Duck often has it, not so conspicuously or well marked as the other but quite enough to show. I have had very little acquaintance with Scaup Ducks, almost none, but it seems to me that if you are looking down on the bird, even from a slight elevation, the very light-coloured back ought to enable you to distinguish him

at once from the dark-backed Tufted Duck, even though the latter wears his white flank-feathers so high that they almost meet in the middle of the back. By the way, did you ever notice a curious difference between the Pochard and the Tufted Duck? The former has a complete "turtle back," while the latter has a well-marked longitudinal depression running the whole length of it.)

If you have not noticed this, just look the next time you are at the Zool. Gardens. I don't know how it is with the Scaup or White-eyed Duck, perhaps betwixt the two.

APPENDIX

LIST OF PUBLISHED PAPERS

NEWTON, A. Nestling of the Siskin (*Fringilla spinus*) in Confinement. *Zoologist*, No. 120-1, Dec., 1852.

— Some Account of a Petrel, killed at Southacre, Norfolk ; with a Description and Synonymy. *Zoologist*, No. 120-1, Dec., 1852.

— Extracts from Letters of John Wolley, Esq., now in Lapland. *Zoologist*, p. 4203, Feb., 1854.

— Psittaci novae Speciei ad conurum Genus Pertinentis descriptio. 1859.

— Remarks on the Harlequin Duck (*Histrionicus torquatus*, Bp.). *Zoologist*, p. 162, 1859.

— Memoir of the late John Wolley, Jun., Esq., M.A., F.Z.S., etc. *The Ibis*, 1860.

NEWTON, A and E. Observations on the Birds of St. Croix, West Indies. *The Ibis*, 1860.

NEWTON, A. Note on the supposed Occurrence of the *Hirundo bicolor* of North America in England. *Proc. Zool. Soc.*, Feb. 28, 1860.

— On some Hybrid Ducks. *Proc. Zool. Soc.*, June 26, 1860.

— Remarks on the *Anas* (*Anser*) *erythropus* of Linnaeus. *Proc. Zool. Soc.*, June 26, 1860.

— Suggestions for saving Parts of the Skeletons of Birds. *Rep. Smithsonian Inst.*, 1860.

— Suggestions for forming Collections of Birds' Eggs. *Smithsonian Misc. Coll.*, 1860.

— Suggestions for forming Collections of Birds' Eggs. Reprinted, with additions, from the *Circular of the Smithsonian Institution of Washington*. London, 1860.

— Anweisung zur Anlegung von Eiersammlungen. (Trans. by E. Baldamus.) *Journ. f. Ornithologie*, Nov., 1860.

— Description of a New Species of Water-Hen (*Gallinula*) from the Island of Mauritius. *Proc. Zool. Soc.*, Jan. 8, 1861.

— Particulars of Mr. J. Wolley's Discovery of the Breeding of the Waxwing (*Ampelis garrulus*, Linn.). *The Ibis*, Jan., 1861.

NEWTON, A. Abstract of Mr. J. Wolley's Researches in Iceland respecting the Gare-Fowl or Great Auk (*Alca impennis*, Linn.). *The Ibis*, Oct., 1861.

— On the Possibility of taking an Ornithological Census. *The Ibis*, April, 1861.

— On the Possibility of taking a Zoological Census. *Journ. Proc. Linn. Soc.*, 1861.

— Remarks on Pallas's Sand-Grouse (*Syrhaptus paradoxus*). *Proc. Zool. Soc.*, May 14, 1861.

— On a Hybrid Duck. *Proc. Zool. Soc.*, Dec. 10, 1861.

— On some New or Rare Birds' Eggs. *Proc. Zool. Soc.*, Dec. 10, 1861.

— On the supposed Gular Pouch of the Male Bustard (*Otis tarda*, Linn.). *The Ibis*, April, 1862.

— On the Zoology of Ancient Europe. Read before *Camb. Philos. Soc.*, March 31, 1862.

— Remarks on the *Fringilla incerta* of Risso. *Proc. Zool. Soc.*, April 8, 1862.

— On the Breeding of the Nutcracker (*Nucifraga caryocatactes*). *Proc. Zool. Soc.*, June 24, 1862.

— On the Discovery of Ancient Remains of *Emys lutaria* in Norfolk. *Ann. and Mag. Nat. Hist.*, Sept., 1862.

— Review of the recently published Memoir of Bewick. *The Ibis*, Oct., 1862.

— Arctic Auguries. *Ocean Highways*, Feb. (?) 1862, (?) 1863.

— On a New Bird from the Island of Madagascar. *Proc. Zool. Soc.*, Feb. 24, 1863.

— Two Days at Madeira. *The Ibis*, April, 1863.

— On an Illustration of the Manner in which Birds may occasionally aid in the Dispersion of Seeds. *Proc. Zool. Soc.*, April 21, 1863.

— On Two New Birds from Madagascar. *Proc. Zool. Soc.*, May 12, 1863.

— Acclimatisation and Preservation of Animals. *National Review*, No. 33, July, 1863.

— Remarks on the Exhibition of a Natural Mummy of *Alca impennis*. *Proc. Zool. Soc.*, Nov. 10, 1863.

— On the Breeding of the Green Sandpiper (*Helodromas ochropus*). *Proc. Zool. Soc.*, Dec. 8, 1863.

— On the Irruption of Pallas's Sand-Grouse (*Syrhaptus paradoxus*) in 1863. *The Ibis*, April, 1864.

— Notes on the Zoology of Spitsbergen. *Proc. Zool. Soc.*, Nov. 8, 1864.

NEWTON, A. Notes on the Ornithology of Iceland. Appendix to Baring Gould's "Iceland, its Scenes and Sagas." 1864.

— On Two New Birds from the Island of Rodriguez. *Proc. Zool. Soc.*, Jan. 10, 1865.

— On some recently Discovered Bones of the Largest Known Species of Dodo (*Didus nazarenus*, Bartlett). *Proc. Zool. Soc.*, Feb. 14, 1865.

— Notes on the Birds of Spitsbergen. *The Ibis*, April, 1865.

— On an apparently undescribed Bird from the Seychelle Islands. *The Ibis*, August, 1865.

— The Gare-Fowl and its Historians. *Natural History Review*, Oct., 1865.

— On a Remarkable Discovery of Didine Bones in Rodriguez. *Proc. Zool. Soc.*, Nov. 28, 1865.

— List of Animals collected at Mohambo, Madagascar, by Mr. W. T. Gerrard. *Proc. Zool. Soc.*, Dec. 12, 1865.

NEWTON, A. and Others. Report on the Extinct Birds of the Mascarene Islands. By a Committee consisting of Professor A. Newton, Rev. H. B. Tristram, and Dr. Sclater. *Report of the Brit. Assoc.*, 1866.

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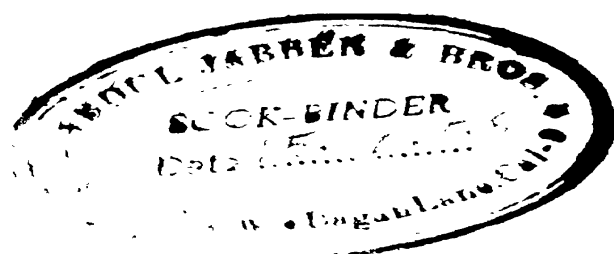
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